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OF

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1898

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MINUTES

OF THE

Medical Association of Georgia.

Forty-ninth Annual Session.

FIRST DAY—AFTERNOON SESSION.

CUMBERLAND ISLAND, GA., April 20, 1898.

The Association met in the Auditorium of the Georgia Teachers Association at 2:30 p. m., and in the absence of the President, Dr. J. B. Morgan of Augusta, the meeting was called to order by the first Vice-President, Dr. L. G. Hardman of Harmony Grove.

Prayer was offered by Dr. J. W. Duncan of Atlanta.

Col. R. E. Park, of Macon, was introduced, and delivered the following

ADDRESS OF WELCOME.

Mr. President and Members of the Medical Association of Georgia:

I do not propose to deliver an address or oration to-day, as I do not think it would be appropriate even if I could do so. "I am a plain, blunt man, and speak right out of things which I do know." It gives me very great pleasure, however, to welcome you to this great Georgia island, the largest on the Atlantic coast between Long Island and the Island of Cuba. It is right and proper that you should visit and acquaint yourselves with this great health resort,

a place to which so many Georgia physicians frequently send their patients to have their strength restored.

The mention of the "Island of Cuba" causes a thought to flash through my mind. Those of you who were at the Academy of Music last night in Macon will remember the inimitable recitation of James Whitcomb Riley, when he spoke of Indiana doctors in his hoosier dialect. He said that "the doctor is always ready to do his duty; in times of danger, that he always stays in the rear." You are living examples of the falsity of his remarks, so far as it applies to Georgia physicians. I have no doubt this band of gentlemen, armed with pocket knives and possibly a pistol or two, have come down from the interior of Georgia to the extreme coast, separated twenty miles from the mainland to bid defiance to the Spaniards and their gunboats. I congratulate you as a band of courageous physicians, and I have no doubt each one of you would like a position as assistant surgeon on some man-of-war.

Mr. President, it occurred to me yesterday when I found I should not be compelled to call upon my distinguished friend, Dr. Moore, an honored ex-president of your Association, to welcome you to-day, that the best I could do to entertain you for four or five minutes would be to tell you some incidents connected with the history of this great island. I was reading about a month ago two histories of Georgia, written by William Bacon Stevens, Bishop of Pennsylvania, and formerly professor in the University of Georgia, and Charles C. Jones, of Augusta, Georgia; and it was stated that the first settlement within the entire territory of Georgia was in the south end of Cumberland Island. At that time the island was called *Missooee*, an Indian name, and out of some act of friendship or compliment to the Duke of Cumberland, the Indians named it Cumberland Island. This outpost or settlement was used, strange to say, by the early English people to defend themselves from the Spaniards, who were then living in and around St. Augustine, Florida. In one of these histories I saw, furthermore, that on the right of the landing, on High Point, Cumberland, as it is called, General James Oglethorpe, the philanthropist, with John and Charles

Wesley, lived for weeks, and there erected fortifications for the purpose of defending the English colonists against the incursions of the Spaniards in Florida. So, twice this island was used for the purpose of protecting the people of Georgia from the incursions at the hands of the Spaniards. Who knows what may occur on this island in the next three months? Fortunately, it is impossible for any gunboat to get nearer than six miles of the island on account of the water being too shallow, and I really believe the safest place in the Southern States will be somewhere on the Cumberland Island, perhaps this hotel. (Applause.) Anyway, we propose to keep the Hotel open, Spaniards or no Spaniards.

In 1786 General Nathaniel Greene, Washington's second in command, and the commander of the Southern Department of the Revolutionary Army, was presented by the Georgia legislature with several hundred acres of land. He located on the south end of this island. Certainly it is true that he moved with his family from Rhode Island, and spent the remainder of his days on Cumberland Island, where his family has lived for eighty years since that time, and only within a few years did they through the misfortunes of poverty, feel compelled to dispose of their property. General Greene, it is said, died in Savannah. Histories differ as to where he was buried. Think of it, next to Washington, the remains of the greatest of our revolutionary heroes lie buried in an unknown grave. While General Greene was living at Dungeness, the place he selected for his home, and named in compliment to the Duke of Cumberland, Aaron Burr, then an ex-vice-president of the United States, driven into exile, sought refuge at Dungeness. It is related that Mrs. Greene, seeing him at the landing, walking up the avenue, and having a repugnance for him on account of his supposed traitorous conduct, closed her doors, and abandoned the home, leaving word with the servants that she could not entertain him. She did, however, entertain Eli Whitney, reputed inventor of that wonderfully useful machine, the cotton-gin. Eli Whitney spent months at Dungeness on Cumberland Island working to perfect his great machine.

How differently Mrs. Shaw, the accomplished daughter

of General Greene felt, when a few years after the visit of Aaron Burr, she saw coming up the same avenue the one who had been Washington's chief cavalry commander, "Light Horse" Harry Lee. She ran to greet him, and welcomed him to Dungeness, and for two months waited upon him, until he was carried away by some form of pulmonary disease, and his remains were buried and now lie here on the shores of the Atlantic Ocean.

In 1868 General Robert E. Lee, the unparalleled general (applause), perhaps the greatest man that America ever saw, made a pilgrimage to the grave of his distinguished father. He came to the landing where we all got off on the banks to-day, went to the beach where the bath-houses are and drove to Dungeness. On his return to Virginia the Richmond papers interviewed him, and in that interview he stated that he had visited many of the greatest seaside resorts in the world, the Mediterranean Sea, the Pacific, the Atlantic and Gulf coasts, but on none of them had he seen so long, so wide, so firm, so smooth, so clean, and so safe a beach. General U. S. Grant the same year visited General Davis, of Washington City, who was living at Dungeness, and confirmed General Lee's high eulogium of the excellence of this beach. On nearly all of the beaches of the northern Atlantic coast the people bathe with shoes on. Here there is no necessity for it, as there are no shells nor stones to hurt your feet. The beach is perfectly smooth and even and firm.

In bidding you welcome to Cumberland Island I must insist that you do not neglect the glorious opportunity which you will have of visiting our beach, and of enjoying the invigorating benefits from the ocean baths. There is nothing comparable to it for insomnia, and in extending to you this welcome, you must not fail to indulge in what some of you may object to, namely, copious draughts of our artesian water. I have it from the most learned chemists and physicians in Georgia that there is no better admixture of medicinal properties anywhere in this country than is to be found in the two unfailing artesian wells on Cumberland Island. They have sulphur, which you know is a great cleanser or purifier of the blood. The water con-

tains lithia, which you know is excellent for kidney troubles. It also contains soda, which is one of the best ingredients for the relief of indigestion and dyspepsia. There will be found also in this water magnesia. Of course, you all know more about the constituent elements contained in this water than I do, and it would be like "carrying coal to Newcastle" to tell you what this water does for invalids.

I will mention only one or two other incidents, and close.

If you do not go on the steamer, which is to be placed at your disposal, for an excursion to Fernandina, it would repay you to visit what was once the largest sea-island cotton plantation in the world, that of Mr. Robert Stafford, a gentleman who was born and lived his entire life, and died at the Stafford place, nine miles south of this point. Mr. Stafford lived to be eighty-seven years of age, and it was a boast of his that he had never in his life called in a doctor, that he had never needed one, and that he attributed his longevity to the fact that he never had anything to do with physicians. (Laughter.) It is a noteworthy fact that no physician was ever a resident of this island from its earliest settlement. It is the custom, however, of the hotel proprietor to have a physician here during the summer season, on account of the numerous visitors, and he is located on the hotel grounds, and is ready at all times to be called upon in any emergency.

There are several gentlemen present who have acted as resident physician for several years on this island, and among them Dr. Moore, who has for many seasons been here, and practiced his profession more or less, but I think he catches more drum fish than he cures sick people.

Another little incident which may interest you occurred some six years ago, when Harry Edwards, the great Georgia author, and myself were coming from Brunswick with the great soldier who is now receiving more attention than any other man, perhaps, in this country, and who bears without reproach the grand old name of Lee—Fitzhugh Lee. (Applause.) He came over on the boat with us, and while he was standing up against the railing of the old boat, being a man of great weight, the railing broke and General Lee

came near falling into a watery grave, but Harry caught him, dragged him upon the deck, and saved him, thus enabling him to win the reputation he has justly earned.

The last skirmish fight of the Confederates was fought on Cumberland Island in the latter part of June, 1865.

After the war was over Captain Webb was stationed here with a few men. He did not have any communication with the interior. There were a few Yankee gunboats on the outskirts, and one of them landed on the island a few miles from here for the purpose of plundering it. Captain Webb saw them, and drove them back to the cover of their gunboats. This is a story which is undoubtedly true.

While your are here I am authorized by the President of the Jekyl Island Club, that has among its members such eminent persons as Pierrepont Morgan, John D. and William Rockefeller, Joseph Pulitzer, Chauncey M. Depew, William K. Vanderbilt, and others, whose combined wealth it is said represents one thousand millions of dollars, to extend to you an invitation to visit Jekyl Island. Although I have been coming and going by Jekyl Island for many years, and am familiar with its history, I have never been upon the island. No Georgian can visit this island without a pass. No Georgian belongs to the Jekyl Island Club. It is, therefore, an extraordinary courtesy for them to permit you to land upon and see this beautiful island.

It is the intention and purpose of the few gentlemen who still own the property of the northern end of Cumberland Island, including this locality, to convert the property into a club, not one exclusively for those who are immensely rich, but it is to be composed largely of Georgians, if possible, and we would be glad to have on our list of members one hundred of the best physicians of Georgia.

Mr. President, it is unnecessary for me to try to relate any more incidents. We have with us this morning a distinguished gentleman, who can say something to you regarding Cumberland Island, and the benefits to be derived from a sojourn here, and I respectfully ask that Dr. K. P. Moore, of Macon, be invited to continue this talk for a few minutes.

REMARKS BY DR. K. P. MOORE.

Mr. President and Members of the Medical Association of Georgia:

After reading a letter from Col. Park last night, in which he stated that if he did not get here I was to represent him, I thought at the first impulse that I would have something to say to you this morning. However, knowing Col. Park as I do, and knowing the danger which now threatens the coast of Georgia and the Southern part of our great country, and knowing that he would be willing to lead a company of doctors, or of other men, to the front, I was sure that he would be with us this morning to deliver an Address of Welcome or to lead to victory, as of old, on historic Cumberland. And hence I made myself easy, and felt no fear of having to make the address.

Since Captain Park has insisted that I should say something in behalf of this beautiful seaside resort, it may not be out of place for me to say a word or two about the healthfulness of this place and the advantages that it offers to sick people, and as a place of recreation for doctors generally. Cumberland Island is one of the most restful places for any physician or patient who is run down and needs recreation; and there is no place on the face of the earth which will give it to him better than this. There are several things here that perhaps you have not thought of that are *especially inviting* to the *tired worn-out doctor.* One is, that there is not a telephone or doorbell on the island. Frequently at home the doctor, when he is worn-out and tired, goes to bed at night, or seeks a nap in the daytime, when, just as he floats off on the peaceful wings of Morpheus, the miserable telephone bell rings and he is mad enough to lose his religion. Such a thing could not occur here, and it is one of the chief advantages of this island. One other advantage is, that we are quarantined, as it were, against the perplexities, and anxious worries of many of life's burdensome cares. I remarked to a friend here this morning that we were entirely cut off from any communication with the interior, and this, instead of being an objec-

tion, is to me a great relief. I do not know how the rest of the members feel about it, but personally I have really enjoyed being quarantined against the United States Congress. Some one asked me this morning "What Congress had done?" My answer was, I did not know and I did not care; I was at peace and happy. (Applause.) If you want to be away from the world, this is the place for you.

Several years ago, you will remember, that Brown-Séquard startled the world by his supposed invention of the elixir of life, and it was thought that it would rejuvenate old men, and everybody started out on a high plane, expecting to be made young again. I remember very well that Dr. Williams and Drs. McHatton, Ross and Little, some of the other older doctors in Macon (laughter), expected to be made as young as Dr. Elliott and myself. Sad to relate the thing exploded, and it was finally left to Cumberland Island to discover the elixir of life. The artesian water of this island, with ozone and salt-laden sea-breezes, cures all ills. None of you need be afraid to drink the water. Fill your circulatory apparatus with pure artesian water, wash out the organs and tissue, fill your stomachs with this fresh seaside food, get your consciences easy, lie down and be fanned to sleep by these ocean breezes and be happy. There is nothing comparable to it. As the great ocean rolls in with the incoming tide, the grand, magnificent waves are but coming to meet you and to give you a cordial welcome to the seacoast and to this island. (Applause.)

ADDRESS OF WELCOME ON PART OF THE LOCAL PROFESSION.

BY J. A. BUTTS, M.D., BRUNSWICK.

Mr. President and Gentlemen of the Georgia Medical Association:

I esteem it a privilege to appear before you in the rôle of a speaker to bid you welcome to this historic part of our State.

Eight years ago it was my privilege to mingle with you

when it was your pleasure to visit Brunswick. We have looked forward to your coming again with great pleasure, and we were more than rejoiced when we knew you were coming to Cumberland Island, because it is a part and parcel of Brunswick, in that it makes a coterie of three—Brunswick, Cumberland and St. Simons. I am astonished when I come here myself that I have indulged so little of the real comfort and happiness which this atmosphere and surroundings give me. I seldom visit here without feeling how much I have lost by not coming to this island oftener. When I know that throughout Georgia there are so many persons who need recuperation and that here are delightful and refreshing breezes which come from the broad Atlantic, I am astonished that so few of them make sojourns to Cumberland Island for health and invigoration. It was my privilege last summer to spend several days here, and during that time I met many of our people, and it was the universal sentiment that they had been materially benefited by the atmosphere, and that they had had no conception of the real comfort and benefit to be derived upon this coast resort so near their home.

I assure you, gentlemen, that an experience of ten years upon the coast of Georgia has materially changed my theory of the practice of medicine, as it pertains to long-standing cases of sickness, confined principally to ladies and children. Since I have lived in Brunswick I have seen little infants that I have given up in despair, but after having said to the parents, "I can do nothing for your child," have recommended them to carry the child out in the morning ocean breeze; the tinge of red would soon appear in their faces, and after getting the ozone or oxygen, call it what you may, which is contained in the atmosphere in large quantities upon the very beaches of these islands, these children would recover and become very healthy. I wish I could impress upon the physicians here to-day the importance of sending, if possible, teething children, and those effected with marasmus, to the island on the coast of Georgia, so as to enjoy the sea-breezes. The atmosphere and surroundings here would benefit them very materially. You can save them here without the use of medicine.

This island is truthfully considered one of the great sanitariums of Georgia, and should be made more so by the physicians of the State. You should see to it that it is thoroughly patronized and the advantages of this and neighboring islands proclaimed to present and future generations. Jekyl Island is almost, as it were, a sealed bottle. The people of Georgia receive no benefits from it. Those who own it come and go. In the course of time it seems to me, that unless we speak out our minds and protect these islands, they will finally pass into the hands of the wealthy, and they are places the benefits of which Georgians should enjoy and their descendants for centuries to come.

I regret very much, gentlemen, that there are not more of my professional brothers here from my own town to welcome you on behalf of the local profession of Brunswick. Speaking of the local profession, I heartily extend to you a cordial welcome, hoping and believing that you will be able to verify my statements to a great degree by even a few days sojourn upon this historic ground, and I bespeak for you a most cordial reception at the hands of the courteous gentleman who will take charge of you while you are the guests of the island.

I again welcome you to lovely Cumberland and its refreshing breezes. (Applause.)

RESPONSE TO THE ADDRESS OF WELCOME.

BY L. G. HARDMAN, M.D., HARMONY GROVE.[1]

Mr. President, Ladies and Gentlemen:

A doctor of medicine, whose time and thought are absorbed with work, as is true of those who do both country and town practice, finds it difficult to concentrate his mind in such form and words as to be able to do justice to himself in responding to the address so full of thought and truth, and eloquently delivered. However, the duty has been placed upon me, and could I express what my heart feels, and could I command language to convey the emotion that rises in my breast, I should count myself happy;

for there is no occasion which stimulates purer thoughts and nobler feelings than these associations. Over a century and a half ago, in fact, one hundred and sixty-two years ago in February last, General James Oglethorpe made a visit to St. Simons Island for the purpose of considering the establishment of a fort, and after consideration it was decided that a fort should be built there. Accompanied by Indian chiefs, he went further and established one on Jekyl Island. But they did not stop here, but came on to this, the "Glorious Cumberland," which name was given by earnest request of one of the Indian chiefs—for the Duke of Cumberland—as he had honored the chief with a token of his friendship by the gift of a watch. It is on this spot that the Association has been so cordially welcomed, and should I have the honor to name this island, I would call it Park in honor of our Park, who is one of our co-workers for the abolition of disease and restoration of health, using remedies prepared by nature in her own pharmacy and laboratory. The object of the forts heretofore referred to was for the protection of the Georgia colony; and from whom? None other than the nation who has degraded civilization and war into brutality and starvation. It was the Spaniards, who at that time were pretending great friendship towards the founders of the Georgia colony, and at the same time preparing for war, and not only war, but brutal massacre of the brave frontiersmen of this historic colony. After war had been declared by Great Britain, and the general had measured arms with the enemies and defeated them, he asked the Spanish Governor to surrender. He sent the following message in reply: "I will be pleased to see you, and shake hands in my castle." This shows something of the nature of the enemy of our country, who is about to bring us into a bloody war at this time.

I feel that this meeting of the Georgia Medical Association might have been postponed on acount of this same enemy, but for the cool deliberation of the head of this great Union. May the great Governor and Controller of the laws of this universe guide and direct the national legislation for the good of our country and the protection of com-

mon liberty. It was only a treacherous device of the Spaniards who blew up the Maine; it is only the brutality of a Spanish government who are starving out their own Cubans.

Now, since we have been permitted by a kind providence to meet on this beautiful island, coming from the interior, country places, towns and cities, to enjoy the air of the sea, and look upon the briny deep and its rolling waves, and mix and mingle with each other, so let us endeavor to make this meeting one of continual profit.

While Cumberland has not the extensive buildings, manufactures and business resources, or the beautiful asphalt of Peachtree, yet she has something that is dearer than these. She may not have been fortunate enough to have produced a Toombs, a Stephens, a Hill, or a Grady; she may not have furnished the birthplace of a Dugas, a Ford, a Campbell, a Westmoreland, or a Battey; she is not the home of a Lanier, a Fortson, or a Stanton, but she is the home of a delightful clime, pure air with its intensifying ozone, invigorating both mind and body to an activity that the most powerful bacteria and microbes and their products dare not harm, and without which, though we lived on a beautiful thoroughfare of some city, life would be but a torment. And at any time, should these powerful germs get the best of us, and a Foster and a Morgan, a Richardson or a Goss, have been baffled, then it is that the great health-restorer, or resort, comes to our aid—Go to Cumberland. I would not be understood as underestimating the value of certain drugs in the treatment of diseases, or in aiding nature in restoring health; yet I do believe that the science of hygiene and sanitation is the great branch of the science of medicine. I had rather always by the power of resistance be able to kill the other fellow, the germ, than to have the laws of health destroyed by him, and thereby furnish a carcass for his meat. I would prefer my invigorated vital forces to do up the germs and ptomaines than to take my chances after my organism had been impaired by bad hygiene and sanitation, and undertake the fight with drugs. Then, if this be true, one of the great principles the physician should

learn is to promote health, and thereby prevent disease, rather than spend much time in the treatment of diseases. As Holmes would express it:—

"God lent his creatures light and air,
And waters open to the skies;
Man locks him in a stifling air,
And wonders why his brother dies.

In vain our pitying tears are shed,
In vain we rear the sheltering pile;
Where art weeds out from bed to bed,
The plagues we planted by the mile.

Be that the glory of the past;
With these our sacred toils begin;
So flies in tatters from its mast
The yellow flag of sloth and sin.

And lo! The starry folds reveal,
The blazoned truth we hold so dear:
To guard is better than to heal,
The shield is nobler than the spear.

In conclusion, to you, the Honorable Robert Park, and the Cumberland Hotel Company, I wish again to express the sincere thanks of this Association for your most hearty and cordial greeting.

As the beautiful violets, full of their sweet perfume, are hidden under their foliage and in the recesses of the flower garden, so my heart, hidden within my breast, shall ever contain in its fleshy column and tender cords a sweet extract of friendship and kind remembrance of Cumberland and her people. (Applause.)

The next thing in order was the report of the Committee on Arrangements. There being no member of that committee present, the report was passed.

Dr. W. C. Lyle, of Augusta, reported in behalf of the Committee on Program.

On motion of Dr. Williams, the program as printed was adopted. It is as follows:

WEDNESDAY, APRIL 20, 10 A. M.

FIRST DAY—MORNING SESSION.

Prayer.

Address of Welcome.

On part of Cumberland Island Club, Col. R. E. Park.
On part of Local Profession, G. W. Blanton, M.D.
Response in behalf of Association, L. G. Hardman, M.D.
President's Annual Address.
Report of Committee of Arrangements.
Report of Committee on Program.
Filling vacancies on Board of Censors.
Applications for Membership.

Practice.

1. Treatment of Typhoid Fever, Wm. J. Cox, M.D., Barnesville.
2. An Interesting Case of Typhoid Fever, W. Hosea Moss, M.D., Monroe.
3. Diphtheria Antitoxin with Report of Cases, Henry R. Slack, M.D., LaGrange.
4. Diphtheria; its Present Status and Treatment, B. C. Powell, M.D., Villa Rica.
5. Antitoxin in the Treatment of Diphtheria, B. L. Bridges, M.D., Ellaville.

AFTERNOON SESSION—3 O'CLOCK.

6. Hysteria, A. A. Davidson, M.D., Augusta.
7. Neurasthenia, H. S. Munro, M.D., Americus.
8. Report of a Case of Poliomyelitis, W. L. Patten, M.D., Milltown.
9. Some Remarks on Chloremia, its Sequelæ and Treatment, Mark H. O'Daniel, M.D., Bullards.
10. A Few Cases from my Note-book, J. G. Hopkins, M.D., Thomasville.
11. Chronic Diarrhea as an Entity, with Report of Cases, T. M. Greenwood, M.D., Mineral Bluff.
12. Pneumonia and Some of its Complications, Oliver P. Bush, M.D., Colquitt.
13. Prophylaxis of Bright's Disease, Everard Hamilton Richardson, M.D., Atlanta.
14. The Importance of Careful Chemical Analysis in Gastric Disorders, Wm. Clifton Lyle, M.D., Augusta.
15. Germs, in Health and Disease, J. W. Duncan, M.D., Atlanta.
16. Some Phases of Drug Habituation, C. C. Stockard, M.D., Atlanta.

EVENING SESSION—8:30 O'CLOCK.

17. The Deadbeat *vs.* the Doctor, W. J. Rowe, M.D., Buford.

18. The Physician, J. S. Wimberly, M.D., Sunlight.
19. Shall Georgia Have a Medical Law Pertaining to Marriage Contracts? J. Cheston King, M.D., Newnan.
20. Mushrooms: A Food and a Poison, W. H. Elliott, M.D., Savannah.
21. The Endoscopic Treatment of Chronic Urethritis, with Report of Cases, W. L. Champion, M.D., Atlanta.

THURSDAY, APRIL 21, 9:30 A. M.

SECOND DAY—MORNING SESSION.

Reading of Minutes.
Applications for Membership.
Report of Board of Censors.
Report of Secretary.
Report of Treasurer.
Reports of Special and Standing Committees.
Appointment of Auditing Committee.

Surgery.

22. The Possibilities of a Perfect Aseptic Surgical Technique, E. C. Davis, M.D., Atlanta.
23. Surgical Treatment of Hemorrhoids, Wm. S. Goldsmith, M.D., Atlanta.
24. Femoral Hernia with Report of Cases, Floyd W. McRae, M.D., Atlanta.
25. Some Remarks on (*a*) Appendicitis, (*b*) Hernia, W. F. Westmoreland, M.D., Atlanta.
26. Report of Appendicitis Cases, with Remarks, J. B. S. Holmes, M.D., Atlanta.
27. Operations for and Treatment of a Pelvic Abscess, J. E. Goethe, M.D., Cordele.
28. A Rare Form of Bone Atrophy following an Ununited Fracture, as seen by the X-Ray, Eugene R. Corson, M.D., Savannah.
29. A Supernumerary Cervical Rib, a Mistaken Radiograph, Howard J. Williams, M.D., Macon.
30. A Report of Surgical Cases, Hunter P. Cooper, M.D., Atlanta.
31. A Report of Some Surgical Cases, T. R. Garlington, M.D., Rome.

AFTERNOON SESSION—3 O'CLOCK.

32. Fracture of Frontal Bone, Operations and Recovery, Jno. R. Shannon, M.D., Cabaniss.
33. Brain Surgery, with Report of Cases, James B. Morgan, M.D., Augusta.
34. Dislocation of Sixth and Seventh Cervical Vertebræ, with General Paralysis, T. S. Hopkins, M.D., Thomasville.

35. The Use of Ethyl Chloride as a Local Anesthetic, W. Z. Holliday, M.D., Augusta.
36. Formaldehyde Gas Aboard Ships and in Bedrooms, for the Disinfection of Personal Effects, Bedding, Carpets, etc., J. C. LeHardy, M.D., Savannah.
37. Further Consideration of Electrolysis in Dermatology, M. B. Hutchins, M.D., Atlanta.
38. A Few Remarks on the Treatment of Post Nasal Adenitis, M. F. Carson, M.D., Griffin.
39. Adenoids in the Pharyngeal Vault, and Their Influence upon the Ear, A. W. Calhoun, M.D., Atlanta.
40. The Common Causes and Treatment of Nasal Stenosis, L. B. Grandy, M.D., Atlanta.
41. Tonsillotomy, When and How to Make It, J. M. Crawford, M.D., Atlanta.
42. Peritonsilar Abscess, Dunbar Roy, M.D., Atlanta.
43. Some Pathological Investigations, Chas. M. Blackford, M.D., Augusta.

FRIDAY, APRIL 22, 9:30 A. M.

THIRD DAY—MORNING SESSION.

Reading of minutes.
Applications for membership.
Report of Board of Censors.

Gynecology.

44. Solid Tumors of the Ovary, Virgil O. Hardon, M.D., Atlanta.
45. Report of a case of Ossific and Calcified Ovarian Fibroma, with Specimen, J. T. Ross, M.D., Macon.
46. A Very Interesting and Unusual Monstrosity in the Form of Twins, with Exhibition of Children, K. P. Moore, M.D., Macon.
47. Cæsarean Section and Porro's Operation, A. L. R. Avant, M.D., Patterson.
48. The Indication for, and Antiseptic Technique of Uterine Drainage, after Labor and Abortion, R. R. Kime M.D., Atlanta.

ELECTION OF OFFICERS AT 11 O'CLOCK.

49. Puerperal Eclampsia and Some Probable Causes of it, J. I. Griffith, M.D., Danielsville.
50. Puerperal Eclampsia, Some Probable Causes, with Differential Diagnosis, J. D. Chason, M.D., Iron City.
51. Alcoholic Irrigation in Puerperal Sepsis, Geo. H. Noble, M.D., Atlanta.
52. A Georgia Incubator, W. P. Williams, M.D., Blackshear.

AFTERNOON SESSION—3 O'CLOCK.

53. Influences Affecting Pregnant Females, Interfering with Normal Development of Fetus, C. D. Hurt, M.D., Atlanta.

54. Tight Lacing; Its Relation to Uterine Development, and to Diseases of the Female Organs of Generation, W. E. Fitch, M.D., Savannah.
55. Complete Rupture of Uterus during Labor, with Report of Case, M. L. Currie, M.D., Ailey.
56. Primary Sarcoma of the Orbit with Cases, Alex. W. Stirling, M.D., Atlanta.
57. Malarial Asthenopia, J. Lawton Hiers, M.D., Savannah.
58. Selected Cases in Eye Refraction, with Comments, Ross P. Cox, M.D., Rome.
59. Suppurative Otitis Media in Childhood, S. Latimer Phillips, M.D., Savannah.
60. Suppurative Diseases of the Middle Ear and their Sequelæ. J. H. Shorter, M.D., Macon.

The first Vice-President appointed to fill vacancies on the Board of Censors, Drs. Elkin and Benedict.

Dr. Lyle moved that the matter of consideration of the new constitution and by-laws be postponed until Thursday morning. Seconded.

Dr. K. P. Moore moved to amend that it be made a special order for Wednesday evening. Seconded.

Dr. J. G. Hopkins offered as a substitute that the matter be laid upon the table, to be taken up at the will of the Association. Seconded.

After some discussion, the substitute was voted on and lost.

After a statement from Dr. Williams to the effect that it was eminently desirable to have the chairman of the Committee on Constitution and By-Laws (Dr. Westmoreland) present when considering this matter, Dr. Moore withdrew his amendment, when Dr. Williams offered as an amendment to the original motion that, on account of the absence of the chairman of the committee, the matter be deferred until Thursday evening and made a special order for that session.

Seconded and carried.

Dr. I. H. Goss moved that the Association extend its sympathy to Dr. Morgan, the President, in his family affliction,

and that the Secretary be instructed to telegraph the same. Carried.

Dr. Goss, as chairman of the Committee on Membership, made his report, which was adopted.

Dr. Williams moved that the reading of letters from absentees be indefinitely postponed. Seconded and carried.

It was moved by Dr. Williams that all papers, the authors of which were not present, be read by title and submitted to the Committee on Publication, subject to their approval. Carried.

Dr. J. G. Hopkins, of Thomasville, then read a paper entitled "A Few Cases from My Note-book," which was discussed by Drs. Benedict, Williams, Rosser, Chason, and Shorter.

Dr. William C. Lyle, of Augusta, followed with a paper on "The Importance of Chemical Analysis in Gastric Disorders." Discussed by Dr. Moore.

The next paper was by Dr. J. W. Duncan, of Atlanta, entitled "Germs of Health and Disease." Discussed by Drs. Hopkins, Holliday, and discussion closed by Dr. Duncan.

Dr. W. H. Elliott, of Savannah, contributed a paper on "Mushrooms—A Food and a Poison." This paper was discussed by Drs. Duncan, Goss, Coile, Shorter, and the discussion closed by the essayist.

On motion, the Association adjourned until 8 p. m.

FIRST DAY—EVENING SESSION.

The Association reassembled at 8 p. m., and was called to order by the first Vice-President.

The Board of Censors reported favorably on the following applications presented for membership during the sessions, and these applicants were declared duly elected.

LIST OF NEW MEMBERS, 1898.

Name.	Post-office.	County.	State.
Corbin, M. X	Savannah	Chatham	Ga
Graham, J. B	Savannah	Chatham	Ga
Daniel, Jno. W	Savannah	Chatham	Ga
Lattimore, Ralston	Savannah	Chatham	Ga
Mountain, Geo. W	Augusta	Richmond	Ga
Tissur, Lonie P	Augusta	Richmond	Ga
Bingham, Wm R	Dublin	Lawrence	Ga
Kinnebrew, E. R	Athens	Clarke	Ga
Cordle, Frank	Trion Factory	Chattooga	Ga
Deadwyler, O L	Carlton	Madison	Ga
Eberhardt, B. F	Gillsville	Hall	Ga
Carter, W. D	Winterville	Clarke	Ga
Matthews, M. F	Nicholson	Jackson	Ga
Hammond, J. H	LaFayette	Walker	Ga
Payne, A. L	Ft. Lamar	Madison	Ga
Christian, J. M	Washington	Wilkes	Ga
Hall, J. R	Mize	Franklin	Ga
Westbrook, T. W	Ila	Madison	Ga
McJunkin, J. M	Toccoa	Habersham	Ga
Travis, W. D	Covington	Newton	Ga
Daniel, J. W	Glenville	Tattnall	Ga
Bryon, J. A	Pendergrass	Jackson	Ga
Brasselton, B. F	Pendergrass	Jackson	Ga
Sharpe, L. J	Harmony Grove	Jackson	Ga
Fitch, W. E	Savannah	Chatham	Ga
Cranford, O. G	Sasser	Terrell	Ga
Izlar, R. P	Waycross	Ware	Ga
Rippard, J. C	Waycross	Ware	Ga
Caldwell, Frank H	Waycross	Ware	Ga
Binion, W. W	Benevolence	Randolph	Ga
Little, Wm. J	Macon	Bibb	Ga
Jones, Henry A	Millen	Screven	Ga
Walton, J. W	Dublin	Lawrence	Ga

On motion of Dr. Williams, Dr. Samuel Lloyd, of New York, was received as an accredited delegate from the New York State Medical Society, and extended the privileges of the floor.

Dr. Lloyd was then introduced, and made a brief, timely and appropriate speech.

Dr. Hopkins moved a reconsideration of the action taken at the afternoon session relative to the constitution and by-laws. Carried.

After considerable discussion, participated in by Drs. Williams, Hopkins, Benedict, and Hiers, Dr. Williams made a motion that the matter be postponed until Thursday evening, and be made a special order for that session, at which time the chairman of the Committee (Dr. Westmoreland) would be present to answer any questions that might be asked. Carried.

On motion of Dr. Lyle, the first Vice-President was empowered to select a delegate to represent the Association at the next meeting of the New York State Medical Society, to be held in Albany, January, 1899.

Dr. Goss stated that the next meeting would be the semi-centennial gathering of the Association. He therefore moved that a button, raised in metal, be gotten up for this particular occasion, and that the faces of Drs. Louis D. Ford and Crawford W. Long appear upon it. Carried.

On motion, the appointment of a committee of three to have this button made was left to the discretion of the first Vice-President.

The Association then adjourned until Thursday at 9:30 a. m.

SECOND DAY—MORNING SESSION.

The Association met at 9:30 a. m., and was called to order by the first Vice-President.

Minutes of previous sessions were read and approved.

The report of the Secretary was called for, and read by Dr. Taylor, as follows:

SECRETARY'S REPORT.

Cumberland Island, Ga., April 21, 1898.

Mr. President: Since the last meeting of your body I have received from the Treasurer.....$20 00
Dues 3 00

Total $23 00

and have paid out, as per vouchers, $32.41, leaving a balance due to Secretary of $9.41.

Respectfully submitted.

R. H. TAYLOR, Secretary.

The report was referred to the Auditing Committee.

The Treasurer's report was next in order, and, in the absence of Dr. Goodrich, Dr. Doster moved that the report be deferred until the afternoon session. Seconded.

Dr. McMaster stated that there were certain matters to come before the Board of Censors which could not be considered and acted upon without the Treasurer. He said the Treasurer should be on duty during the sessions of the Association. He therefore moved to amend the motion that the Treasurer appoint a substitute to act for him during his absence. Seconded.

Dr. Doster said that Dr. Goodrich would be present at the afternoon session and make his report, and that he had been delegated by him to receive dues.

The motion as amended was carried.

Reports of special and standing committees were called for.

There was no report from the Committee on Necrology.

When the report of the Committee on Medical Legislation was called for, Dr. Goss said that Dr. Bizzell, the chairman of that committee, was sick and unable to attend the meeting.

The first Vice-President appointed as the Auditing Committee Drs. Barron, Sharp and Lyle.

Dr. E. R. Corson, of Savannah, contributed a paper entitled "A Rare Form of Bone Atrophy Following Ununited Fracture, as Seen by the X-Ray," which was read by Dr. Fitch, in the absence of the author.

Dr. H. J. Williams, of Macon, followed with a paper on "Supernumerary Cervical Rib—A Deception in Skiagraphy," which was discussed by Drs. Lloyd, Shorter, and the discussion closed by the author.

Dr. T. S. Hopkins, of Thomasville, read a paper entitled "Dislocation of the Sixth and Seventh Cervical Vertebræ, with General Paralysis." Discussed by Drs. Elliott, Duncan, and Lloyd.

On motion, the Association adjourned until 12 o'clock.

The Association reassembled pursuant to adjournment, with the first Vice-President in the chair.

Dr. Hunter P. Cooper, of Atlanta, read a paper entitled "Report of Surgical Cases," which was discussed by Dr. Westmoreland.

Dr. Dunbar Roy, of Atlanta, contributed a paper on Peritonsillar Abscess," which was discussed by Drs. Shorter, Hiers, Burt, Crawford, Kenyon, Cooper, Montgomery, and, in closing, by the author of the paper.

On motion, the Association adjourned until 2:30 p. m.

SECOND DAY—AFTERNOON SESSION.

The Association reassembled at 2:30 p. m., and was called to order by the first Vice-President.

As a committee to get up a souvenir button suitable for the semi-centennial meeting next year, the first Vice-President appointed Drs. Goss, E. H. Richardson, and Harbin.

Dr. W. F. Westmoreland read a paper entitled "Report of Twenty-nine Successful Cases of Tracheotomy for For-

eign Bodies in the Air Passages," and exhibited specimens. The paper was discussed by Drs. Moore, Crawford, Hopkins, and the discussion closed by the essayist.

Dr. M. F. Carson, of Griffin, read a paper on "The Condition of Imperfect Septum between the Mouth and Naso-Pharynx, Usually Termed Cleft Palate." This paper was discussed by Drs. Shorter, Crawford, and, in closing, by Dr. Carson.

Dr. J. H. Shorter, of Macon, read a paper entitled "Suppurative Diseases of the Middle Ear, and their Sequelæ," which was discussed by Drs. Crawford and Hopkins.

Dr. J. M. Crawford, of Atlanta, read a paper on "Tonsillotomy—When and How to Make It." Discussed by Drs. Hopkins, Duncan, Ross, and the discussion closed by Dr. Crawford.

In the absence of Dr. Sharp, the first Vice-President appointed Dr. Bryant to serve on the Auditing Committee.

Dr. G. H. Noble offered the following resolution, which was adopted:

Whereas, The Committee on Medical Legislation has been seriously hampered in its work by inability to secure attendance of members living at a distance from the capital of the State; and

Whereas, The committee is required to meet at the capital during the session of the Legislature; be it

Resolved, That the sum of one hundred ($100.00) dollars, or such part thereof as may be necessary, be appropriated to pay railroad expenses of such members as do not live in Atlanta, and for the purpose of defraying other minor expenses necessarily incurred by said committee.

Dr. W. Z. Holliday, of Augusta, read a paper on "The Use of Ethyl Chloride as a Local Anesthetic." Discussed by Drs. Harbin, Hopkins, Davidson, Graham, and the discussion closed by the essayist.

The Treasurer, Dr. Goodrich, now read his report, as follows:

April 21, 1898.

To the Medical Association of Georgia:

Gentlemen:— I beg leave to submit my annual report, as follows:

Dr.

To balance on hand, as per last report.....	$ 433 06
To amount received during year from dues.....	$ 907 00
To amount received during year from new members,....	505 00
	$1, 845 06

Cr.

By amount paid out, as per vouchers accompanying.....	$1,438 21
Leaving a balance on hand of.....	$ 406 85

This balance is on deposit in the Georgia Railroad Bank in Augusta.

I thank the members for their uniform courtesy and patience in receiving my numerous reminders.

During the past year or two I have not *rigidly* carried out the provision in our by-laws *requiring* me to drop from the roll of membership the names of all who are *two years in arrears.* I have not done this, because I know the neglect to pay *promptly* is unintentional on the part of almost all who are in arrears; and I have saved the Association the loss, not only in money, but also the names of many of the best men in the State. I have retained them by being lenient. There are some now present who have paid me as much as $15.00 back dues at one time, and who, perhaps, if their names had been dropped, might never have cared to join again. This, however is not fair to the Association, or to those who pay promptly. Therefore I have been instructed by the Board of Censors at this meeting to enforce the law in *every* case, and I shall, from this time on, after due notification, drop the name of every member, it matters not who he may be, who fails to pay at the end of *two* years. There are at present on my books *over eighty* of these delinquents. who owe for two, three, four, and even five years. Almost all that have not paid for three years or more have been dropped from the roll, but I retain them so far on my books.

I ask the Association to allow me to have a certificate of membership engraved; one that will be a credit to the Association,

and which would adorn the walls of any man's office. We have never had such a thing, because we could not afford it: but now I think we can, and it would be a good way of celebrating our semi-centennial.

Respectfully submitted.

E. C. GOODRICH, Treasurer.

The report was referred to the Auditing Committee.

Dr. Lyle moved that a committee of three be appointed by the chair to decide whether or not the Association shall issue the certificates suggested by the Treasurer in his report, and the style and character of them.

Seconded by Dr. Goss.

Dr. Holliday moved, as an amendment, that the Treasurer and the Board of Censors be empowered to issue such certificates if in their judgment the funds of the Association would warrant it. Seconded.

Dr. Lyle accepted the amendment.

After some remarks by Dr. Barron relative to the financial condition of the Association, Dr. L. G. Hardman made a motion that the matter be postponed until after the consideration of the constitution and by-laws. Seconded and carried.

On motion, the Association adjourned until 8 p. m.

SECOND DAY—EVENING SESSION.

The Association reassembled at 8:30 p. m., with the first Vice-President in the chair.

The special order of the consideration of the new constitution and by-laws was proceeded with.

Each article of the constitution, with its respective sections, was read by the chairman of the committee, Dr. Westmoreland, and adopted. After the adoption of the last article, on motion of Dr. Benedict, the constitution, as read, was adopted as a whole.

The by-laws were then taken up, and each article, with

its respective sections, was likewise read and adopted, with minor changes, and then they were adopted as a whole.

Dr. Benedict then moved that the Committee on Constitution and By-laws be discharged, and that the unanimous thanks of the Association be extended to them for their valuable and efficient services, which was seconded and carried.

On motion of Dr. Noble, the Committee on Publication was empowered to condense the resolutions providing for the appointment of a Committee on Legislation, without changing the sense of them.

On motion of Dr. Montgomery, the Code of Ethics was ordered to be omitted from the Transactions.

Dr. J. J. Hill moved that the Committee on Necrology be instructed to prepare suitable resolutions regarding the death of Dr. G. W. Mulligan, of Washington, and that the Secretary be instructed to forward a copy of them to the widow. Seconded and carried.

Dr. J. L. Hiers called attention to the death of Dr. Montague L. Boyd, of Savannah, since the last meeting of the Association, and moved that the Committee on Necrology be instructed to draft suitable resolutions, or an obituary, as they deemed proper. Carried.

The matter of having a certificate of membership printed for the use of the members was again considered, and, on motion of Dr. Moore, it was laid upon the table.

Dr. McMaster, as chairman of the Board of Censors, stated that after hearing the remarks and statements made by Dr. Westmoreland and others concerning Dr. Alexander, the board requests that the Association reinstate him. This request was unanimously acceded to.

On motion of Dr. Williams, the Secretary was instructed

to notify Dr. Alexander by letter from Cumberland Island of his reinstatement. Carried.

On motion, the Association adjourned until 9:30 Friday morning .

THIRD DAY—MORNING SESSION.

The Association met at 9:30 a. m., and was called to order by the first Vice-President.

Minutes of the previous sessions read and approved.

Dr. Goodrich rose to a question of personal privilege. He said that a statement was due to the Association of his absence yesterday. He had no idea that his presence would be needed by the Board of Censors, and he wished to apologize for his absence.

Dr. Barron, chairman of the Auditing Committee, made the following report:

Cumberland, Ga., April 21, 1898.

To the Medical Association or the State or Georgia:

We, your Auditing Committee, beg leave to submit the following report:

We have examined the books of the Secretary and Treasurer, and find them correctly and neatly kept, and their balances correct. We recommend that the stenographer be paid one hundred dollars and expenses, in attending this convention; that the Secretary be paid an honorarium of $150.00, and the Treasurer $200.00.

Respectfully submitted.

R. B. BARRON,
W. C. LYLE,
J. A. BRYAN.

On motion, the report was adopted.

Dr. J. T. Ross, of Macon, read a paper entitled "Report of a Case of Ossific and Calcified Ovarian Fibroma," and

exhibited the specimen. The paper was discussed by Drs. Noble, Moore, and in closing by Dr. Ross.

Dr. K. P. Moore followed with a paper entitled "A Very Interesting and Unusual Monstrosity in the form of Twins, with Exhibition of the Feti," which was discussed by Drs. Harbin, Hopkins, Benedict, Montgomery, and in closing by the essayist.

The Secretary read an invitation from the Florida State Medical Association, inviting as many members to attend their Jacksonville meeting as possible.

On motion of Dr. Moore, the invitation was accepted, with thanks, and the first Vice-President instructed to send a delegate to the meeting.

Dr. R. R. Kime, of Atlanta, read a paper entitled "The Indications for and Antiseptic Technique of Uterine Drainage after Labor and Abortion."

Dr. George H. Noble, of Atlanta, read a paper on "Alcoholic Irrigation in Puerperal Sepsis."

Dr. J. I. Griffith, of Danielsville, followed with a paper on "Puerperal Eclampsia, and Some Probable Causes of It."

These three papers were discussed jointly by Drs. Graham, Dunean, Hardman, and the discussion closed by Drs. Kime and Noble.

Dr. Benedict read the following report from the Board of Censors:

REPORT OF THE BOARD OF CENSORS.

The Board of Censors beg leave to report as follows:

1. Action upon applications for membership resulted in acceptance of thirty-three, as per list already reported.

2. After discussion upon the subject, it was decided to request the Secretary to send to every member of the Association a circular letter embodying sec. 3, p. 327, in Transactions of 1896, Code of Ethics, and also art. 7, sec. 3, of the by-laws, as to members in arrears.

3. The name of Dr. F. M. Brantley, of Senoia, Ga., was ordered placed upon the roll of honorary membership, and the Secretary is instructed to explain by letter to Dr. Brantley that it was an oversight that his name did not appear on the honorary list in previous years.

4. The Treasurer of the Association was called before the Board to explain, if possible, certain inaccuracies in the membership list. It has been reported to the board that names were continued upon the list who had paid no dues for several years, and should have been dropped from the list; of others who had paid their dues, but whose names did not appear on the list. Now that new rules and regulations have been adopted by the board of this Association explaining the duties of the Secretary and Treasurer, we only deem it necessary to call the attention of the Association to this matter, so as to avoid in future such errors as have occurred in the past. Art. II., sec. 3, p. 41.

The Board of Censors reconsider their action of last year and unanimously advise the reinstatement of Dr. James D. Alexander, of Atlanta, Ga., and that his name be placed upon the honorary list.

The report was adopted.

Dr. Westmoreland moved that the Medical Association of Georgia have absolutely nothing to do with local affairs, with local fee bills, etc., and that the Association take cognizance of only such violations as occur directly within its jurisdiction. Seconded, and unanimously carried.

The Secretary read a communication from Dr. Mark O'Daniel, in which he regretted not being able to attend the meeting. Dr. O'Daniel sent his paper, which he requested to be read by title.

The Secretary read a telegram from the President of the Association, Dr. Morgan, which read: "Please convey to the members of the Association my sincere thanks for their kindly interest and sympathy. My heart and soul are with them in their noble work. I hope you will have the most pleasant and profitable session in the history of the Association."

Dr. W. E. Fitch, of Savannah, read a paper entitled

"Tight Lacing: Its Relation to Uterine Development, and to the Disease of the Female Organs of Generation," which was discussed by Drs. Lyle, Holliday, and, in closing, by Dr. Fitch.

Dr. J. L. Hiers, of Savannah, followed with a paper entitled "Malarial Asthenopia."

Dr. A. A. Davidson, of Augusta, read a paper on "Hysteria," which was discussed by Dr. Duncan, and, in closing, by the essayist.

The First Vice-President appointed the following delegates to the American Medical Association:

DELEGATES TO THE AMERICAN MEDICAL ASSOCIATION.

Dr. W. H. Elliott,
Dr. J. W. Duncan,
Dr. B. R. Doster, Jr.,
Dr. W. E. Fitch,
Dr. J. T. Ross,
Dr. W. B. Tate,
Dr. F. W. Coile,
Dr. L. G. Hardman,
Dr. E. R. Kinnebrew,
Dr. C. T. Montgomery,
Dr. L. H. Jones,
Dr. J. S. Todd,
Dr. J. McF. Gaston, Jr.,
Dr. S. C. Benedict,
Dr. E. C. Goodrich,
Dr. O. H. Buford,
Dr. W. W. Stewart,
Dr. T. R. Wright,
Dr. E. R. Anthony,
Dr. T. R. Garlington,
Dr. D. D. Quillian,
Dr. B. F. Smith,
Dr. A. S. Stovall,
Dr. T. N. B. Spence,
Dr. S. J. Smith,
Dr. B. F. Brasselton,
Dr. G. H. Noble,
Dr. W. F. Holt,
Dr. I. H. Goss,
Dr. E. H. Richardson,
Dr. M. F. Carson
Dr. R. M. Harbin,
Dr. K. P. Moore,
Dr. H. B. McMaster,
Dr. W. F. Westmoreland,
Dr. A. W. Calhoun,
Dr. W. Z. Holliday,
Dr. W. H. Doughty ,Jr.,
Dr. W. S. Elkin,
Dr. Dunbar Roy,

Dr. J. J. Hill,
Dr. J. A. Bryan,
Dr. J. L. McLean,
Dr. F. W. McRae,
Dr. W. C. Lyle,
Dr. F. M. Ridley,
Dr. J. B. S. Holmes,
Dr. F. H. Caldwell,
Dr. J. W. McJenkin,
Dr. J. L. Hiers.
Dr. H. J. Williams,
Dr. R. H. Taylor,
Dr. P. W. Butler,
Dr. J. B. Morgan,
Dr. J. W. Bailey,
Dr. R. B. Barron,
Dr. F. M. McIntosh,
Dr. J. G. Hopkins,
Dr. J. C. LeHardy.

As delegates to the Florida Medical Association, the first Vice-President appointed Drs. Fitch and Graham; to the New York State Medical Society, Drs. J. B. Morgan and I. H. Goss.

Dr. Williams offered the following resolution, which was adopted:

Whereas, There is a bill now pending before the National Legislature known as the "Anti-Vivisection Bill," which if passed, will work an inestimable injury to the promotion of the science of medicine; therefore, be it

Resolved, That the Medical Association of Georgia earnestly protests against the passage of said bill, and that the chairman of the Legislative Committee be instructed to write our representatives in Congress, and the senators from Georgia, urging them to use their influence in every honorable way to prevent the passage of this measure.

Dr. Goss moved that a committee be appointed to memorialize the Legislature, asking that the Association be allowed to recommend to the Governor names to fill vacancies on the State Medical Examining Board as they occur in the future. Seconded by Mr. Davidson.

Dr. Westmoreland moved to amend: that the matter be referred to the Committee on Medical Legislation. Seconded.

The amendment was accepted by Dr. Goss, and carried.

The next thing in order was the election of officers for the ensuing year.

The first Vice-President appointed as tellers Drs. Holliday and Coile.

The elections resulted as follows:

President, Dr. Howard J. Williams, Macon; First Vice-President, Dr. J. G. Hopkins, Thomasville; Second Vice-President, Dr. I. H. Goss, Athens.

The Secretary of the Association was instructed to cast the ballot of the Association for Dr. W. S. Elkin, of Atlanta, to fill the unexpired term of Dr. Williams, and Dr. S. C. Benedict, Athens, the regular term on the Board of Censors.

On motion, Macon was chosen as the next place of meeting.

Dr. Williams was then introduced as the President of the Association. He was warmly received, and said:

"I thank you for the great honor you have conferred upon me. To be President of the Medical Association of Georgia is in itself an honor of which one may feel proud, but to be the fiftieth President of it is the highest honor in a doctor's life in Georgia. To be President of an Association organized by Louis D. Ford, and which has had as its members the Dugas, the Westmorelands, the Nottinghams, and our learned brother Dr. Elliott, and others, is indeed an honor that I highly appreciate. I thank you." (Applause.)

The first Vice-President, Dr. Hopkins, was called upon to make a speech. He said:

"Gentlemen, I extend to you my heartfelt thanks for this compliment which you have so unworthily bestowed upon me. I consider it a great compliment, one of which any

man should be proud: to be elected to any office in the gift of this Association." (Applause.)

The first Vice-President thanked the Association in behalf of the absent President, and especially the committees for their efficient work. He felt confident that if the President were at the meeting he would certainly be able to respond in a very fitting speech.

Dr. Benedict moved that the unanimous thanks of the Association be extended to Dr. L. G. Hardman, for the efficient manner in which he had presided at this meeting. Seconded and unanimously carried.

On motion, a vote of thanks was extended to the local Committee of Arrangements.

The following papers were read by title:

1. "Treatment of Typhoid Fever," by Dr. Wm. J. Cox, of Barnesville.

2. "An Interesting Case of Typhoid Fever," by Dr. W. Hosea Moss, of Monroe.

3. "Diphtheria Antitoxin, with Report of Cases," by Dr. Henry R. Slack, of LaGrange.

4. "Diphtheria: Its Present Status and Treatment," by Dr. B. C. Powell, of Villa Rica.

5. "Antitoxin in the Treatment of Diphtheria," by Dr. B. L. Bridges, of Ellaville.

6. "Neurasthenia," by Dr. H. S. Munro, of Americus.

7. "Report of a Case of Poliomyelitis," by Dr. W. L. Patten, of Milltown.

8. "Some Remarks on Chloremia, Its Sequelæ and Treatment," by Dr. Mark H. O'Daniel, of Bullards.

9. "Chronic Diarrhea as an Entity, with Report of Cases," by Dr. T. M. Greenwood, of Mineral Bluff.

10. "Pneumonia and Some of its Complications," by Dr. Oliver P. Bush, of Colquitt.

11. "Some Phases of Drug Habituation," by Dr. C. C. Stockard, of Atlanta.

12. "The Dead-beat vs. the Doctor," by Dr. W. J. Rowe, of Buford.

13. "The Physician," by Dr. J. S. Wimberly, of Sunlight.

14. "Shall Georgia Have a Medical Law Pertaining to Marriage Contracts?" by Dr. J. Cheston King, of Newnan.

15. "The Endoscopic Treatment of Chronic Urethritis, with Report of Cases," by Dr. W. L. Champion, of Atlanta.

16. "The Possibilities of a Perfect Aseptic Surgical Technique," by Dr. E. C. Davis of Atlanta.

17. "Surgical Treatment of Hemorrhoids," by Dr. Wm. S. Goldsmith, of Atlanta.

18. "Femoral Hernia, with Report of Cases," by Dr. Floyd W. McRae, of Atlanta.

19. "Report of Appendicitis Cases, with Remarks," by Dr. J. B. S. Holmes, of Atlanta.

20. "Operations for and Treatment of a Pelvic Abscess," by Dr. J. E. Goethe, of Cordele.

21. "A Report of Some Surgical Cases," by Dr. T. R. Garlington, of Rome.

22. "Fracture of Frontal Bone, Operations and Recovery," by Dr. Jno. R. Shannon, of Cabaniss.

23. "Brain Surgery, with Report of Cases," by Dr. Jas. B. Morgan, of Augusta.

24. Formaldehyde Gas Aboard Ships and in Bedrooms, for the Disinfection of Personal Effects, Bedding, Carpets, etc.," by Dr. J. C. LeHardy, of Savannah.

25. "Further Consideration of Electrolysis in Dermatology," by Dr. M. B. Hutchins, of Atlanta.

26. "Adenoids in the Pharyngeal Vault, and Their Influence upon the Ear," by Dr. A. W. Calhoun, of Atlanta.

27. "The Common Causes and Treatment of Nasal Stenosis," by Dr. L. B. Grandy, of Atlanta.

28. "Some Pathological Investigations," by Dr. Chas. M. Blackford, of Augusta.

29. "Solid Tumors of the Ovary," by Dr. Virgil O. Hardon, of Atlanta.

30. "Cæsarean Section and Porro's Operation," by Dr. A. L. R. Avant, of Patterson.

31. "Puerperal Eclampsia, Some Probable Causes, with Differential Diagnosis," by Dr. J. D. Chason, of Iron City.

32. "A Georgia Incubator," by Dr. W. P. Williams, of Blackshear.

33. "Influence Affecting Pregnant Females, Interfering with Normal Development of Fetus," by Dr. C. D. Hurt, of Atlanta.

34. "Complete Rupture of Uterus during Labor, with Report of Case," by Dr. M. L. Currie, of Ailey.

35. "Primary Sarcoma of the Orbit, with Cases," by Dr. Alex. W. Sterling, of Atlanta.

36. "Selected Cases in Eye Refraction with Comments," by Dr. Ross P. Cox, of Rome.

37. "Suppurative Otitis Media in Childhood," by Dr. S Latimer Phillips, of Savannah.

There being no further business to transact, on motion, the Association adjourned to meet in the city of Macon, the third Wednesday in April, 1899.

NOTE—***Any member wishing copy of the Code of Ethics can procure it by writing to the Journal American Medical Association, 61 Market St. Chicago.***

A FEW CASES FROM MY NOTE-BOOK.

By J. G. HOPKINS, M.D., Thomasville.

In presenting the cases I give an account of to-day, I do so simply as a matter of interest, not of instruction. It is truly said, "there is nothing new under the sun," but while these cases may be familiar to many, I feel assured they will be new to some of you, as they were to me.

Case 1.—C. W. W., a thirty-year-old white man, 5 ft. 7 in. high, weighing 165 pounds, came to me in October, 1897, and complained, as he said, of having "a chafe which would not heal." Upon examination I found two fistulæ centrally located over the lower end of the sacrum one inch apart, and about 1-12 of an inch in diameter. I converted the two openings into one, and found a bunch of curly blonde hair about 2 to 2½ inches long, and in amount sufficient to fill a No. 10 thimble. After scarification and cauterization, I left the wound to heal by granulation.

To my surprise, he returned in about a month, saying "that place has never healed." I found the cavity well filled with new tissue, but there were several small fistulous openings instead of two, as before. Out of each of these openings I drew several strands of hair similar to those first removed. I cut down again to the bone, drew a lot of hair out of the flesh from different directions, and packed the wound. The wound was kept open by packing, and during every dressing since I have drawn out with my forceps a dozen or more strands of hair which seem to occupy the tissues in every direction. The ends appeared and I drew them out without effort, as they seemed not to be attached

anywhere. They just lie in the flesh, as it were, all around the sides and ends of the wound.

Again I allowed the cavity to fill, and the same result was obtained. I cut down again, and went through with the same procedure, and now, at this writing, it is open and the same condition exists.

I exhibit here the hairs removed at the last three dressings, made at intervals of three or four days. I regret not being able to show the original bunch or curl. It was through mistake thrown away by my office girl.

A dermoid scyst is not a very uncommon thing, but the sex, situation and constant recurrence of the hair in this case render it rather unique.

Case 2.—I herewith exhibit the photograph of a curious affection in a boy eight years old. The trouble began between the great and adjacent toes of the left foot. There was considerable irritation, vesication and intense itching for several days. As it seemed to be parasitic in its nature, I will say *it* started out from the seat of attack, traveling under the cuticle about half an inch a day up the foot in a tortuous, zigzag course, leaving a red raised track about one half the size of a medium goose-quill, which reminded me very much of the track of a ground-mole in the earth. When it had reached a point over the approximal end of the metatarsal bones, it bore to the left or outer side of the foot, posteriorly beneath the ankle, and crossed under the foot to the inner or right side. Then it traveled upward toward the instep, and at a point about one inch from the sole of the foot it disappeared. Whence it came, whither it went, or what it was, I do not know. I exhibited the foot to several physicians, have talked and written to others of it; but have had no light thrown on the subject by any one. I have searched medical literature liberally, but find no description of it anywhere. I tried to arrest its progress

with tincture of iodine and nitrate of silver, but to no avail. Just when I had made up my mind to dissect for microscopic investigation it disappeared. At first the symptoms were characteristic of, and the affection taken for ground-itch, a disease about which I have never found anything to

WHAT IS IT?

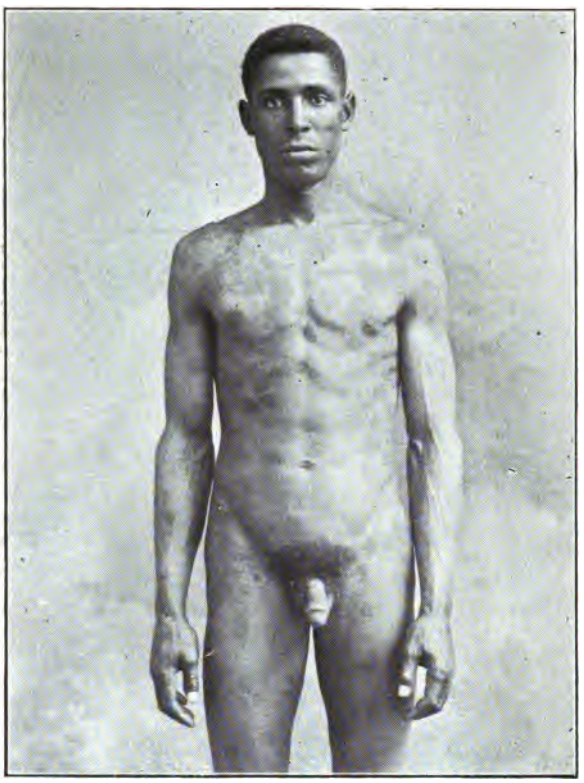
read; yet it is as familiar to the people of the South as a picnic redbug or the bellow of a big bullfrog. It can in no way be confounded with the chigoe, which burrows in the skin, and lives only in hot climates, but which is never guilty of such freaks as was evidenced in this case.

Case 3.—T. G., a mulatto, aged 28; weight 150 lbs.; height 5 ft. 8 1-2 in. An employee of the Plant System of Railways. Personal history good. Was never sick, except with slight attack of influenza in December, 1896.

PEMPHIGUS, EIGHT DAYS AFTER ATTACK.

Was seen first on September 20, 1897. Had had fever about twenty-four hours; temperature 102; pulse 128; had a few bullæ on lips, face, wrists and shins. I diagnosed pemphigus, and began a quinine and arsenic treatment. Lo-

cal applications of dry boracic acid. Opened the bowels and gave morphine to relieve pain and general discomfort experienced. The bullæ appeared thick and fast, varying in dimensions from the size of a filbert to that of a walnut,



PEMPHIGUS, SEVEN MONTHS AFTER ATTACK.

and required but a few hours to reach apparent full growth. I punctured them at each visit, giving exit to the fluid contents at the most dependent point, leaving the cuticle otherwise intact, for protection. In a few days almost the entire cuticle had been separated from the cutis. The scalp,

palms, and the mucous membrane of the nose, mouth and throat were extensively involved. Deglutition difficult and painful. Liquid diet a necessity.

On October 1st, he was carried upon a cot to the Plant System General Hospital at Waycross—a hospital second to none in all of its appointments and capacity of officials.

At my request the following letter was written by House Surgeon R. P. Izlar:

HISTORY OF THE CASE.

General Hospital, Waycross, Ga., March 23, 1898.

Dr. Frank H. Caldwell, Superintendent and Chief Surgeon, Waycross, Ga.

Dear Doctor:—In reply to yours of the 15th, find below information requested. Case of pemphigus vulgaris. T. G., colored, aged 28; brakeman; nativity, Georgia. He was admitted to the hospital October 1st, 1897. Family history negative; previous history negative. No venereal history. Present illness commenced two weeks prior to admission with small blister on lower lip, which ruptured in two days; they then came out over the whole body and mucous membrane of nose and throat. Examination, upon admission, we found entire body covered with bullæ, not one inch exempted, and also denuded patches varying in size. The symptoms were those of pain, itching and fever. During the attack his temperature range was from 99 F. to 101 1-2 F. He was discharged cured October 27th, 1897. His treatment while in hospital: Mercurial cathartic, followed by saline. Liq. potass. arsenitis in increasing doses. Large doses of quinia sulph. Liquid diet. Patches: local treatment—alkaline baths, and a paste compound of aristol, bismuth, oxide zinc and vaseline. The patient was enveloped in absorbent cotton from head to foot, the same being held in place by rolled bandages.

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His mouth and nose were kept clean with peroxide hydrogen, and he was subjected to formaldehyde fumigation or vapor b. i. d. At first he could only stand the vapor for a short space of time, but soon became accustomed to it, and would allow the lamp to remain in his room nearly all day; said it made him feel better. The secretion from the bullæ being acid, the patient was given alkaline baths b. i. d. The skin remained pigmented for three months after, and at this writing has not entirely resumed its natural color.

Very truly,

(Signed) R. P. IZLAR, House Surgeon.

I present the history of this case, because of its rarity, extremity and result. I do not believe that medicines are of benefit in such cases, except so far as to insure comfort. I herewith exhibit photographs showing stages of the disease and present condition of the subject, now seven months since the attack, and about six months since he was discharged cured and resumed his duties as brakeman on the railroad.

DISCUSSION ON DR. HOPKINS'S PAPER.

Dr. S. C. Benedict of Athens: I have seen a photograph of the foot in which the parasite had burrowed, and my impression is it was a case of lichen vermiformis. But in that condition there is apt to be much more inflammation, thickening of the skin, and redness than the photograph would suggest. I would like to ask Dr. Hopkins if that condition was present in the foot at any time?

Dr. Hopkins: Not in the foot. There was a little streak that could be easily traced.

Dr. Benedict: Was it inflamed or thickened?

Dr. Hopkins: Not at all. There was no inflammation to amount to anything in the foot, and the boy did not seem to complain of it, except when the parasite burrowed in

between the toes, and then there was considerable itching.

Dr. Williams: The case reported by Dr. Hopkins reminds me of what is known in the West Indies as jiggers, a parasite that burrows in the plantar surface of the foot and causes a great deal of trouble. It lays its eggs and develops in that part of the human anatomy. The question of prophylaxis is of more interest than treatment, and it is one that has not been fully settled by surgeons or physicians of Cuba and the West Indies. The only treatment for it at present is bathing the foot in kerosene oil. Whether this oil is in itself a germ-destroyer I do not know. My partner (Dr. McHatton) has had a good deal of experience with it. We have seen one or two cases in Macon that resemble the case reported by Dr. Hopkins. He has repeatedly told me that what is called jiggers is frequently seen in the West Indies. It is a sand-flea, or insect, that burrows its way in the soles of the feet and lays its eggs. It does not affect any particular race: either the negroes, the coolies, the American, or white citizen. The treatment consists in removing the parasite and its ovum. I do not know whether Dr. Hopkins considers his case one of jiggers or not. It may have been brought over by some person coming from Cuba or the West Indies, and it is possible for it to develop in the Southern States.

Dr. Hopkins: If Dr. Williams had paid particular attention to a part of my paper, he would have heard me say that my case was not to be confounded with chigoe. This parasite is only found in warm climates and burrows under the skin, but is never guilty of the freaks of my case. It deposits its egg and reproduces itself, but never migrates in the skin. I have never seen a chigoe since I have been practicing medicine, and I have never heard of one being in our section of the State. Sixty years ago they were common on the coast of Georgia. They are never seen there now.

Dr J. P. Rosser of Atlanta: I spent a year and a half on the Island of Cuba, and while there I saw a number of cases of jiggers among the negroes. I saw quite a number of negroes who had lost some of their toes from the parasites. I found that they burrowed under the skin in a pouch-like manner, principally on the toes, around the nail. The main body of the parasite is under the skin. The pouch or sac is oval-shaped, and one end of it is very near the surface and is easily removed with a sharp instrument. The negroes after removing the parasites fill the opening where the sac comes from with tobacco juice or ashes from cigars, and that is the end of it. I am satisfied that Dr. Hopkins's case was not that of jigger of the West Indian variety.

Dr. Thomas Chason of Donaldsonville: As illustrating the possibility of the parasite being a chigoe or sand-flea, as it is most popularly called, I will say that among those engaged in poultry-raising in Southwest Georgia I hear complaints that they kill small chickens by burrowing in the head and neck. Mercurial ointment is the remedy they use for its destruction. Whether or not it is the same parasite as found in the Indies I am not prepared to say.

Dr. J. H. Shorter, of Macon: I have never had a case of pemphigus in my practice, but I have seen three cases that were treated and cured by purgation and quinine. The purgation had more effect towards ameliorating this disease than anything else associated with quinine. The cathartic itself was the beneficial thing. Some cases of pemphigus are extremely severe and a fatal termination is not unknown.

THE IMPORTANCE OF CAREFUL CHEMICAL ANALYSIS IN GASTRIC DISORDERS.

By WM. CLIFTON LYLE, M.D., Augusta, Ga.

In this short paper I wish first to show that the technique of chemical anlysis of gastric contents is by no means difficult; next that in the determination of a correct diagnosis it is of the utmost importance.

The skill to obtain and analyze stomach contents does not lie beyond the dexterity and ability which every physician ought to possess, and it certainly should be utilized when we come to consider that the diagnosis of diseases of the stomach are based as much upon the results of our own investigations as upon the statements of the patients themselves.

I shall content myself, in this paper, with only a few of the more important tests, and ones requiring no apparatus or reagents that the average practitioner does not possess.

TEST MEAL.

This consists of a common roll and a glass of water. Some investigators prefer a roll of a definite weight containing known quantities of proteids, fats, sugar, etc. Others allow a cup of weak tea, instead of water. I consider any dry roll satisfactory and prefer water to tea, as it contains no acid. Best given early in day, as stomach is then empty.

STOMACH CONTENTS.

The first procedure is to obtain some of the stomach contents a few hours after eating test meal. This I secure by

means of the stomach tube. I always use the soft rubber tube with an opening in the tip and one or two fenestræ very near the end. I prefer one with a collapsible bulb, so that by squeezing to expel air and pinching top together I get a vacuum sufficiently powerful to draw into the lumen of the tube whatever fluid contents may be in the stomach. I regard this as an ideal instrument for this purpose and one which in the hands of even the most inexperienced is incapable of injury to the mucous membranes. After filtering contents of stomach tube, you will find a pale, yellow colored liquid, with perhaps tinges of a greenish yellow if there has been much retching or nausea on introducing tube, due to a regurgitation of bile. If filtrate is acid you will ascertain whether due to free acid or acid salts. For this purpose use Congo paper, which retains its brownish red color in a solution of acid salts, but turns blue in presence of free acid.

Having found free acid present you first test for HCl. For the purpose use

BOAS'S REAGENT.

Resorcin Resublim.....gr. lxxv.
Sach. alb.....gr. xlv.
Spts. dilut.....oz iiss.

Mix, and into this solution dip strips of filter paper and allow to dry. With the tip of a glass rod transfer a drop of the filtered stomach contents to the paper and heat gently until dry. A brilliant red spot will appear if free HCl is present.

By comparative neutralization of stomach contents and HCl solution, with caustic soda, the percentage of free acid may be determined.

LACTIC ACID.

If you find the stomach contents give an acid reaction, but the tests for HCl are negative, you proceed to

test for the organic acids. Of these I shall speak of lactic acid only, as it is one which most concerns us in making a correct diagnosis.

In testing for this acid I find Uffelmann's test, while not absolutely definite, perfectly satisfactory, as the presence of a small quantity of the acid is not diagnostic, and in all cases where Uffelmann's test does not give the characteristic reaction the lactic acid present may be disregarded.

This test consists of a neutral solution of ferric chloride, to which is added a few drops of a weak carbolic acid solution and the whole diluted with water until it assumes a beautiful amethyst blue color. To this a few drops of the gastric fluid added, and if lactic acid be present the blue color is replaced by a canary or greenish yellow.

PEPSIN.

It is seldom necessary to test for pepsin, as it is almost an established rule that where there is sufficient HCl there is a sufficient secretion of pepsin ferment. But where for any reason you wish to make such digestion tests, the simplest and most practical way consists in placing in each of four tests tubes a small quantity of gastric juice and in each of these a small thin slice of the white of a hard-boiled egg. To the first tube add nothing; to the second a few drops of HCl solution; to the third a pepsin solution: and to the fourth both HCl and pepsin. Place all in a warm chamber and by observing the time required to digest the particles of albumen in each tube you will readily discover the ingredient lacking in the gastric juice.

ABSORPTION TEST.

As this test is of great use in arriving at a diagnosis of cancer of the stomach, it may be of interest to describe the

method of making it. In a normal stomach, the administration of iodide of potash is shown in the saliva in about five minutes, while in a cancerous stomach it is from one-half to one hour after administration before it can be detected. To determine the time required, have patient expectorate in a glass containing a solution of silver nitrate, and as soon as the saliva contains iodide of potash, it will turn yellow. The above tests are all that are necessary to make ordinary gastric analysis.

I will now present a few cases that have recently occurred in my practice, where a positive diagnosis would, to say the least, have been very difficult, if not impossible, at the time, had I not made frequent chemical tests.

Case 1.—J. H. B., white, male, aged 56, carpenter. Called to see this gentleman; found him very much emaciated, painful expression, pale, muscles flaccid; patient complained of a feeling of distention, especially after eating, with considerable pain just below xiphoid. For a year had poor appetite, constipated, persistent heartburn, occasional attacks of hiccough, almost constant eructation of offensive gas and frequent vomiting. Examination of urine showed small quantity of albumen, but no casts. Palpation revealed slight enlargement of liver, spleen normal in size; no tumor or sensitive spot could be discovered over region of stomach. Percussion revealed a considerable enlargement of stomach; the lower border being on a line a little above the umbilicus. On introducing stomach tube to test gastric fluid, found that I had to carry it to a distance of twenty-three inches, which also showed considerable dilatation. There was no enlargement of glands and no edema of joints.

From the symptoms in this case one would be led to conclude he had a case of simple dilatation of the stomach to contend with. However, after repeated chemical examinations, in which I seldom found free HCl and always a very

perceptible amount of lactic acid, I made a diagnosis of cancer of the pylorus, which was verified at his death a few months after.

Case 2.—Mrs. W., white, female, aged 48. I was called to see this case in consultation with Dr. D.; during an alarming hemorrhage from the stomach found her in a state of collapse, vomiting blood and mucus, purging and utterly unable to retain anything in the stomach. Controlled hemorrhage with morphia and ergotin hypodermically; resumed examination next day, found tongue coated, very foul breath. In addition to the pallor incident to hemorrhage, noticed earthy color of skin. No tumor in abdominal region that could be discovered, although examination was considerably interfered with owing to gaseous distention of stomach; suffered with sharp pains in stomach, severe heartburn, frequent belching and ascent of fluid into the mouth.

Previous history elicited information of an occasional attack of acute indigestion, supposedly due to errors in diet. Had felt better than usual for several days prior to attack. In this case there was no necessity for the use of the stomach tube as there was an abundance of vomited matter after each test meal, and in which there was an entire absence of free HCl. After all acute symptoms had passed and patient was on her feet again, I made other tests at intervals of several days and found no HCl, but lactic and buctyric acids in abundance, which led me to make a diagnosis of cancer. Otherwise with the symptoms and history of the case I should certainly have decided upon a round ulcer of the stomach and an acute gastritis.

Believing that a considerable hemorrhage from cancer of the stomach is evidence that the stage of successful surgical interference is past, I did not advise an operation. Patient continued to grow worse; death ensued from cancer four months after first hemorrhage.

Case 3.—Mary H., white, female; aged 31. This patient presented herself at clinic eight months ago with symptoms of chronic indigestion; put her on pepsin after each meal with no appreciable improvement. After three weeks began the administration of HCl. Patient reported decided improvement in all symptoms while continuing treatment, but almost immediate relapse as soon as HCl was discontinued.

Tested gastric fluid at intervals of three days for two weeks and found absence of HCl in every instance. Potassium iodide was not perceptible in saliva until forty minutes after administration. Made diagnosis of cancer and advised operation, which was refused. Six weeks after patient had hemorrhage from an easily detected tumor near pyloric orifice. Patient is rapidly growing worse with all symptoms of malignant cancer.

Case. 4—A. K., white, male; aged 42; decorater. This patient came to me with almost all the subjective symptoms of gastric cancer. Pale with decided cachexia. Lower limbs edematous; glands enlarged; liver and spleen hardened; tongue pale and coated; stomach distended and tender. About ten months prior to consulting me gradually began losing appetite, weight and strength. Shortly after began vomiting food together with mucus and streaks of blood. Recently on examining vomited matter had repeatedly found substance resembling coffee grounds. Had persistent cough, with engorgement of apex of left lung. Had been told that he had cancer of the stomach by two physicians in New York city, who had advised him to come south upon advent of pulmonary troubles.

Analysis of stomach contents after test meals revealed abundance of free HCl. Patient began having hemorrhages some weeks after, which continued at intervals of from two to six days, until death. An autopsy showed

primary cause of death to be obstruction of portal circulation due to cirrhosis of liver.

Case 5.—J. B., white; male; aged 45; painter. This patient presented himself with a tympanitic and distended stomach, tenderness and pains on pressure at a point just above umbilicus. Furred tongue, persistent nausea and vomiting, hiccough that never ceased, not even, as he claimed, during sleep; showed me a specimen of "coffee ground" vomit. Had muddy complexion; no subcutaneous fat; skin seemed almost like parchment. This train of symptoms had persisted for a year, growing constantly more severe. Had been advised to submit to surgical operation, by his physicians, for cancer of the stomach, and when he first came to office his appearance was such that I remarked to him that I considered he had made a grave mistake in not taking their advice. Several analyses of stomach contents were made, and in all, found at least a trace of free $H\bar{C}l$. However, potassium iodide was found in saliva eight minutes after administration.

I put patient on treatment for nervous antacidity and dilatation, and had the satisfaction five weeks later of seeing him at work in the railroad shops, where he is now employed.

These cases could be multiplied, but I consider they are sufficient to show the importance of chemical analysis in all gastric disorders where there is a difficulty in arriving at a diagnosis.

By this means we are enabled to make a diagnosis of cancer before metastasis has taken place. No surgeon can promise good results after characteristic cachexia, edema of joints, enlargement of glands, "coffee grounds" vomit, and palpation of tumor are plainly perceptible.

On the other hand, it will often suggest a correct diagnosis for those cases so closely simulating cancer, and with-

out which we would be at a loss to determine their exact nature.

DISCUSSION ON DR. LYLE'S PAPER.

Dr. K. P. Moore of Macon: This is one of the most important papers that can come before the Association, and I congratulate Dr. Lyle on presenting it in so able a manner, and congratulate the Association upon having such an able paper. The simplicity of the tests given will be the source of a great deal of information to us and will result in great good. Such investigations along practical lines are bound to result in great practical utility. The sooner we realize the great fact that the stomach is the great laboratory in which is evolved the nutritive elements out of what we put into it, the better for us all. While we cannot follow the digestive process below the stomach, we can so easily know whether or not this organ is performing its function in the proper way, that a failure to know its defects, if they exist, is to stop short of our duty. In the process of digestion, there is evolved out of our food products the elements of the blood, and without good blood we can have no good tissue; and since one of the important steps in the digestive process is accomplished in the stomach, and since this department in nature's laboratory can be so easily reached, and its irregularities corrected, every man who practices medicine should be interested in every investigation along these lines, and this paper of Dr. Lyle appeals to our better judgment as of great value.

GERMS IN HEALTH AND DISEASE.

By J. W. DUNCAN, M.D., Atlanta.

Much attention has been given to the germ theory of disease for a number of years, and much has been learned, through patient and faithful bacteriological research.

Bacilli peculiar to certain contagious and infectious diseases have been claimed to be so constantly present as to aid us very much in diagnosis; thus Eberth's bacilli are present in typhoid, gonococci in gonorrhea, tubercle bacilli in consumption, Loeffler bacilli in diphtheria, Nicolaier's bacilli in tetanus, etc. We are not so much surprised that very great attention has been given this subject for the past fifteen years, as that so little was given it previously, when we remember that germs are the "Alpha and Omega" of all animal as well as vegetable life. With suitable environments, the vegetable germ springs into life—first the blade, then the ear, and after that the full corn in the ear—every seed possessing germs peculiar to its species. So it is in the animal kingdom.

The ovum, having been vitalized by the spermatozoa, begins its germination and continues it, not only until a certain stage of utero-gestation, but until delivery, and on and on, through the natural life of the individual, so that at no stage of life can a person be found to be free from micro-organisms. They continue to multiply, and, having served their function in the organism, die and are thrown off as waste material, but not until millions more have been evolved to take their place.

I have not been trying to describe diseased germs, but

normal non-toxical ones, such as are found in great numbers in all healthy animals, but a variety of influences may be, and doubtless are, brought to bear on these normal micro-organisms and they become poisoned by various ptomaines, etc. The character of the poison determines the effect on the normal germs, and thus we have the various bacteria developed. Even the bacteria coli communis, which was thought at one time to be innocent, and, in fact, useful to the economy, is more and more showing its pathogenic virulence. This, to my mind, is only the result of a toxin, and when thus poisoned their physical appearance is so very much like Eberth's bacilli that bacteriologists are puzzled to differentiate them.

Dr. Heneage Gibbs, who is a most renowned scientist, and one of the foremost bacteriologists of the world, and who has for several years occupied the Chair of Bacteriology, etc., at Ann Arbor, Michigan, while recognizing the existence of bacteria, and their possible influences, denies their importance as a causative factor of disease. He concedes to Dr. Koch the discovery of the tubercle bacillus and the bacillus of cholera, but he denies that in either instance has the etiological influence been demonstrated. "The idea," says he, "that we must dodge a Kelbs-Loeffler bacillus here to escape diphtheria, a bacillus tuberculosis there to escape consumption, or a comma bacillus to evade cholera, etc., is a mere fad, nothing more nor less."

He denies, too, even the fact, hitherto urged as a proof of their etiological nature, that these pathogenetic micro-organisms are always present in certain diseases. He declares that he has conducted hundreds of autopsies on consumptives without finding a trace of bacillus tuberculosis.

As before intimated, the peculiar characters of the bacilli, as to their form and virulence, are determined by the materies morbi which act on them. Thus the various forms, as streptococcus, staphylococcus, asteriform mi-

crobes, the vibrios, gonococci, etc.; and not only the form and virulence are determined by the special toxin, but their size and various characteristics as well. The toxin which contaminates the normal micro-organisms in a given case may and does cause the same to become abnormal; and thus the diseased germs help to multiply the morbific agent, as may be demonstrated in a suitable culture medium.

Normal germs in a healthy individual may become diseased by the use of unwholesome food, impure water, alcoholic stimulants, etc., and, by the way, the alcoholic bacilli, which have been described by bacteriologists, were originally normal germs, but which have changed their form and character by becoming diseased through the toxical influence of alcohol.

But this is only one way by which a healthy person may become diseased. Bacteria and their toxins from a diseased person are communicated by contagion or infection to an individual previously healthy, and if the virulence of the infection be too great for the leucocytes to conquer, the materies morbi invade germ after germ, and these sick ones multiply and augment the enemy's force, until the patient succumbs to the disease, or until remedies are applied to aid nature in neutralizing, eliminating and subjugating, by phagocytosis, the enemy.

Take one example of a diseased germ affecting a healthy one—the spermatozoa from a syphilitic patient fecundating a healthy ovum and thus we have inherited syphilis in the offspring.

All infectious diseases are now claimed to be caused by pathogenic germs, or their ptomaines. Thus bacteria may be local or general. When they are local, as is the case of Loeffler's bacilli, their toxins enter the general system and produce the constitutional disturbance. In septicemia, they are general; also in pyemia. Certain bacteria seem

to have a predilection for certain organs, as the pneumococcus, etc.

Ever since man was created, two forces have been at work in the body—the one constructive and the other destructive—both equally essential factors in the maintenance of health, and whatever interferes with the normal metamorphoses of the tissues is an enemy. And ever since that memorable edict went forth "dust thou art, and unto dust shalt thou return," there has been a war waging, and at times raging, in every human body.

The vis medicatrix naturæ constituting the army of defense, while the bacteria, or their ptomaines, etc., are the invaders. The army of defense is composed of all the vital forces, while the marauders include in their ranks all the devitalizing agents known to man. They are in the air we breathe, the water we drink, the food we eat, and ever and anon we come in contact with one of our own race who has been overcome by the enemy and is suffering with a loathsome, infectious disease.

Let us suppose that it be smallpox. The toxins invade the system, uninvited and unobserved, and at once begin to recruit their forces from the ranks of the non-toxic micro-organisms, and during the entire stage of incubation this process goes on, so that at the expiration of nine to fifteen days many millions have been enlisted, drilled and armed with the same implements of destruction, and, now, the declaration of war is made. The vital forces are very much handicapped in consequence of so many privates having been unwittingly enlisted in the ranks of the enemy; for these, while protesting against the invasion of their citadel, are powerless to throw down their arms and break ranks. The vital energies, which as yet have not been duped into the service of the enemy, bring all their reserve force into active service—the battle is furious—it rages for days and weeks, but thanks be to God, the great Giver of all

good, of whom it is said, "He maketh the wrath of man to praise him, and the balance of wrath he restraineth," when the smoke of battle shall have cleared away, we find that the enemy has been subjugated. The leucocytes have devoured the bacteria and neutralized their toxins. We are amazed when we investigate the field and the army of defense is brought before us for review. The privates, who have crowned themselves with honor on the field of battle, have been promoted and are now captains, colonels, majors, and generals. Their resistance against the same enemy has been multiplied a thousandfold by being armed with a proteid, called mycophylaxin, imparting to the phagocytes increased power to devour bacteria. The same enemy may try as it may to enter the citadel; let its toxins, or, if you please, the pathogenic organisms, invade the system, but you will find that they cannot again do their work of destruction—their bacteria will be devoured by the phagocytes—the vital fluids will neutralize their toxins—the vital energies are too well disciplined to be again enlisted in the ranks of the enemy—the patient is immune. This is in a measure true with most of the infectious diseases: yellow fever, typhoid fever, scarlet fever, measles, variola, etc.; while others are rendered partially immune, or only temporarily so. In this class we find diphtheria, Asiatic cholera, pneumonia, gonorrhea, malarial fever, delirium tremens, etc.

But will the result justify the means by which the immunization was accomplished?

Certainly not. The war is a fearful combat, and notwithstanding the energies of nature, aided by all devices of science, many millions of our race have succumbed, and, after death, the vital energies cease; then, if the embalming fluid be not used at once, these agents of destruction continue their work unimpeded, and the body soon returns to dust.

How can we most successfully limit the spread of contagious diseases?

In the operating-room extensive major operations are being done every day, under the aseptic and antiseptic régime, and, notwithstanding the extensive field explored, not a microbe or bacteria can get a foothold. All honor to the men who have assisted in the work which has made these results possible.

Much is being done in private practice to limit the spread of disease, but very much more should be done. The excreta from the sick, whether from the bowels, kidneys, lungs, or skin, should be disinfected, and as soon as possible the house should be fumigated. It has been said that "Cleanliness is next to Godliness," therefore, our sanitary boards should be vigilant in keeping everything clean that is in their province. There should be more attention given to the water and milk we drink, that there be no source of contagion from them. Meats and vegetables demand investigation. Each individual should observe the laws of sanitation and hygiene relative to his own person and premises. By so doing he will be the better able to resist the contagion should he be exposed.

It is not surprising that it has been said that the latter-day physician has little standing in the eyes of the profession if he does not live in daily fear of being devoured by "an army of animalcules, or destroyed by a host of bacteria"; nor is it surprising that in the north there are many men who spend their lives "hunting worms just like a goose; atackin' Latin names to 'em an' letin' of 'em loose."

Immunity may be natural or acquired. We have a good example of acquired immunity as the result of inoculation with the virus of smallpox, or as is now the custom, vaccination with bovinized virus. When a person is vaccinated and revaccinated until he is vaccinized, he is immune.

Much experimentation has been made with various an-

titoxins, the results of which are far from being satisfactory. It is to be hoped that more light will be given and better results obtained; but until a safe and reliable preventive shall have been found, I would urge the necessity of a strict quarantine system; and I would emphasize the importance of a well-regulated national quarantine. When everything shall have been done to prevent infection and shall have failed, what shall we do to arrest the ravages of the enemy?

We are told to use antiseptics. What are they? How do they act?

Any agent that counteracts or antagonizes sepsis is an antiseptic. How these agents act cannot be answered so easily. Some neutralize the toxins, aid the phagocytes in devouring the bacteria, and help to remove the débris from the system. The agent should not be strong enough to injure the normal fluids or solids of the body, for this would defeat the purpose for which it was used. The leading object of every remedy used against sepsis should be to conserve nature, whether the agent be a so-called antiseptic, a vegetable or a mineral tonic, or one which will eliminate effete material from the system.

By whatever means the energies of nature are increased, and the sentinels of health reinforced, sepsis is antagonized, phagocytosis is encouraged. Thus, strychnia, quinine, arsenic, phosphorus, iron, salines, etc., are in a sense antiseptics. In other words, any agent that will neutralize the poisons or aid nature in destroying them is an antiseptic, whether the modus operandi be by neutralization, elimination, subjugation, by phagocytosis aided by positive chemiotaxis—the latter being the leading mode by which the enemy is to be conquered.

Let us improve the arsenals, strengthen the navies, reinforce the standing army, and call out the reserve, and we shall have borne some humble part in conquering the

enemy, restoring peace, and preserving intact the republic, and our patients will rise up and call us blessed.

DISCUSSION ON DR. DUNCAN'S PAPER.

Dr. J. G. Hopkins of Thomasville: I would like to ask Dr. Duncan a question. I know that we can have and do have a number of cases of tuberculosis who die of the disease without our being able to detect the tubercle bacilli in the sputum. I want to ask him if the physician whom he quoted believes that they are present in the tissues in all cases, although he was unable to find them in the sputum.

Dr. Duncan: The gentleman whom I mentioned in my paper said that he had made hundreds of post-mortem examinations on patients that had died of tuberculosis and failed to find the tubercle bacilli. In answer to the doctor's question, I must say, that I believe the tubercle bacilli are the result and not the cause of consumption.

Dr. W. Z. Holliday of Augusta: I have nothing special to add to the paper to which I have listened with a great deal of interest. I was particularly interested in the interrogation of Dr. Hopkins regarding the germs in cases of consumption. The question as to whether the bacillus of tuberculosis is the cause or the result of the disease is an open one. A great deal has been said, and is being said, from time to time on this subject. I was recently called to treat a well-advanced case of consumption when a microscopical examination was first made. The expectoration from this patient consisted of large lumps of sticky mucus, in which we would expect to find perfect colonies of the so-called specific germ, but repeated examinations failed to disclose the presence of tubercle bacilli. I would like the doctor to elucidate that point and help us to a further understanding of the causal relation that this so-called

specific germ sustains to the dreaded disease consumption, which is taking away so many of the human race.

Dr. Duncan (closing the discussion): It is well known by all of those physicians who have paid much attention to bacteriology and to the subject of tuberculosis, that we find tubercle bacilli very often in the incipient stage of tuberculosis. Later in the disease the expectoration may be examined and no tubercle bacilli found. Later again we may find them in abundance in the sputum. This is the history of cases of tuberculosis by those who have made a close study of the sputa of consumptives.

I have great confidence in the ability of Dr. Gibbs from the remarks that were made about him by Dr. Koch himself when called to the University of Michigan at Ann Arbor. Dr. Gibbs was leaving Europe at that time, and Dr. Koch himself declared that they were losing one of the ablest men in the profession as a bacteriologist. Dr. Gibbs declared that after years of study he has become convinced that the tubercle bacilli have very little relation in causing tuberculosis. He does not believe the bacillus of tuberculosis causes the disease, but says it is a mere fad, nothing more nor less.

I do not know exactly where you can find the papers that are published by him on this subject.

Dr. W. Z. Holliday: I would like to have an expression from Dr. Duncan himself as to the causal relation of this germ to the disease.

Dr. Duncan: My individual opinion is that the tubercle bacillus is the result and not the cause of the disease.

MUSHROOMS A FOOD AND A POISON.

By W. H. ELLIOTT, M.D., Savannah.

Two months ago I received from the Chairman of the Committee on Program a request that I would kindly favor the Association with a paper to be read at this meeting. I acceded to his request, and I will have to leave it to you to say, whether or not, this invitation to a side dish could be constructed into a kindly favor.

Two years ago at the meeting at Augusta I made a few unpremeditated remarks upon the subject of mushrooms. I was careful to warn the Association that the statements I made were based only on a study of two standard works. Since then I have continued my studies, and have put them to a practical test whenever good mushrooms could be found. I have eaten many different varieties and so far with entirely satisfactory results. But I once read "Toadstools are nasty things; nobody knows anything about them. Let them alone and they'll never hurt you."

Perhaps the popular idea on this subject will be better expressed by the retort of a mountaineer whose experience had proved rather disastrous, that hereafter he would eat meat that the good Lord had provided, and not food that the devil had spewed out of the ground.

But take whichever side of this question you wish, the number of mushroom-eaters in this country is steadily growing larger and it is incumbent on you to know how to recognize and treat cases of mushroom-poisoning. Mushrooms belong to that order of plants known botanically as fungi. There are many thousand species. By far the

larger number are microscopic, such as the mildew, the smut on grain, and the mold that forms on cooked fruit, etc. The larger forms of fungi are known indifferently as toadstools or mushrooms. They number about one thousand species and to them exclusively will your attention be requested. While mushrooms grow in many different forms, the commonest and best known is the Campestris, or mushroom of commerce. This belongs to the class of Agarics or gilled mushrooms.

The structure of an Agaric is as follows: You are all familiar with the resemblance to an open umbrella. The stem has a few thread-like roots at its base, which is often bulbous. Sometimes the stem is the same size throughout its length, but it may taper at either end. Its upper part is often surrounded by a ring or collar. On top of the stem is the pileus or cap. This is rounded on top till the mushroom is mature, when it becomes flat or even concave. On the under surface of the cap are gills, or leaves, which radiate out from the stem to the margin of the cap. In the young mushroom this margin is close to the stem and often joined to it by a delicate membrane called the veil, which is ruptured by the expansion of the cap as it grows. The collar on the stem is the remnant of the veil.

The surfaces of the gills are thickly covered with club-shaped projections called basidii, at the termini of which are found minute cells called spores, by which the plants are reproduced. The gills with the projections and spores are the reproductive part of the plants, and are known as the hymenium. The form of the hymenium and the character of the spores serve as a basis for the classification of mushrooms.

The mushroom is not however the plant. It only corresponds to the fruit. The real plant is a network of white threads called mycelium. These grow in congenial soil

and may remain dormant for months. Then at the proper season, generally just after a rain, small round balls form at certain points. These soon assume an oval shape, break through surface of the earth, and in two or three days become a full grown mushroom. So that the mycelium corresponds to the plant, the mushroom to the fruit, and the spores to seeds. Spores differ from seeds however in two important particulars; no trace of a germ has been discovered in them, and they will not grow to order when planted.

The limits of this paper will not allow me to take up the subject of classification. I will merely speak of the three classes of mushrooms ordinarily used for food, namely Agarics, Boleti, and Puff Balls.

The Agarics have been already described and are easily known by their gills.

The Boleti belong to the class of Polyporei. These have roots, stem and cap like the Agaric, but a different hymenium. This consists of a more or less spongy substance on the under side of the cap, permeated with countless fine tubes called pores, the lining membrance of which bears basidii and spores, as do the gills of the Agarics. The Boleti are next in number and importance to the Agarics.

The Puff Balls are far less numerous, but are still very good eating. These are popularly known as devil puff-boxes and doubtless every one has crushed them and sent the cloud of spores down the wind. There are none of them poisonous, but they are only fit to eat when young and fresh. In this state the substance is firm and white. When yellow and soft they are too old. In the United States food is so abundant and mushrooms so little known, that tons of delicious food are allowed to go to waste for the want of gathering. Their use in this country is limited to a few botanists and others, mostly members of the Mushroom Clubs of Boston, New York, Philadelphia, and Wash-

ington. In Europe mushrooms are in general use as food. They are gathered in the woods and fields, regularly sold in the markets; and in Paris miles of cellars are maintained for the artificial cultivation of the mushroom of commerce.

While botanically, mushrooms are plants, chemically and gastronomically they are meats, and are highly nutritious. Like meat they are subject to rapid decay and are liable to be infested with worms. Only fresh, sound mushrooms are fit for food.

Mushrooms may be unfit for food because of decay or attack of insects, or because some varieties are slimy, nauseous, bitter, or tough and leathery, and lastly because of subtle poisonous alkaloids without distinctive taste or smell.

It has been known for centuries that some mushrooms were deadly poisons; one of the Cæsars is said to have sometimes disposed of the objects of his dislike by their means. In a very old print I have seen one of the deadly variety named "the poisonous mushroom of France." Up to twenty years ago many rules were given in text-books by which bad mushrooms might be distinguished from the good. These rules, while designating the poisonous mushrooms more or less accurately, included with them many of the edible and most desirable species.

It remained for Julius A. Palmer, Jr., of Boston, to discover that all fatal cases of mushroom-poisoning were due to the family of Agarics named Amanitæ, thus more clearly defining the bad, and lifting the cloud of suspicion from hundreds of other varieties.

The family of Amanitæ has about thirty species. It is supposed that about ten are poisonous and the rest good. It is all important that we should be able to recognize this noxious family. The distinctive marks are usually very plain, The young mushroom, while it is still under the

ground, is inclosed in a sac called the volva. In growing the mushroom soon assumes an egg shape, and then that of a dumb-bell. At this stage the volva is torn apart by the upward growth of the plant. The lower part of the sac remains under ground forming a cup or socket out of which the stem seems to grow. This is called the "poison cup" or "death cup"; not because the poison is especially located there, for the whole mushroom is poisonous, but because it is the sign by which the deadly species may be known. A portion of the upper part of the volva may remain on top as excrescences or warts. These are sometimes swept off, so that neither their presence nor absence is distinctive. Beside the cup all poisonous varieties of Amanitæ have white gills and white spores. *The poison cup is usually underground and must be sought for.* The mushroom must be dug up. If pulled or cut the destinctive cup may remain concealed in the earth, and its warning missed.

The best known member of this noxious family is the Amanita Muscaria or "fly mushroom." This is a very showy mushroom. The cap is orange, or red, and is thickly covered with white excrescences, which are permanent; the combination of the two colors is striking and very characteristic. The stem is bulbous at the bottom and the cup is not very distinctly marked. It embraces the stem so closely that on section it is seen to be separated only by a line. The upper edge of the cup is generally irregular and often there are one or more rings on the stem just above, which gives the lower part of the stem a rough ridgy appearance.

The history of this mushroom is interesting. It was, as I have said, used as a poison by one of the Cæsars. In some parts of Russia it is regularly used as an intoxicant. It has caused several fatalities in this and other countries. Last November Col. Vecchi, an Italian of Washington,

D. C., died after eating this mushroom, which he had bought in the market by mistake for the Amanita Cæsarea. Not long before that Mr. Berry Benson, of Augusta, though knowing well the character of this mushroom, tried it and was made severely ill.

The symptoms of poisoning by the muscaria may begin soon after eating or not for several hours. There is dizziness, loss of control over the voluntary movements, perspiration and chills. Soon these are followed by nausea and vomiting, purging and tenesmus. Then there is heart-failure from paralysis of the nerves controlling the action of the heart. There may be delirium followed by fainting and stupor, the skin becomes cold, and there is a leaden hue to the lips. Collapse and death follow in from two to four days. The symptoms are grouped under two heads, irritation of the alimentary canal and nerve prostration. Sometimes the one set of symptoms predominate and sometimes the other, but the heart-failure is constant and it is through this that death comes. The poisonous principle is muscarin. The proper treatment is as follows: If the case is seen soon enough, emetics and oleaginous purgatives with enemas of warm water and turpentine must be used to get rid of any portion of the poison that is retained in the alimentary canal. If vomiting and purging have already taken place, then the antidote must be given; this the sulphate of atropin. *It must be administered hypodermically* in doses from 1/100th to 1/50th of a grain every hour till the danger is past. While I have no warrant for saying so, I should add to this a small quantity of morphine to control the abdominal distress. The poisonous properties of the muscaria are due to an alkaloid discovered in 1866 by the German chemists, Schmeideberg & Koppe. It is called muscarin. "Experiments made by these authors demonstrate that muscarin arrests the action of a frog heart, that a muscarined frog's heart began to beat imme-

diately under the influence of atropin, and further that it was impossible to muscarin a frog's heart while under the influence of atropin."

According to a more recent analysis of Professor R. Kobert, the fly mushroom contains not only the poisonous alkaloid muscarin and the amanitin of Letellier, which is probably harmless when fresh, but also a third alkaloid, pilz-atropin, that is, mushroom-atropin. The effect of this third alkaloid, it is claimed, is to neutralize to a greater or less extent the effect of the poisonous one. Only through the presence of this natural antidote in the fly mushroom, says Kobert, is it possible in some parts of France and Russia to eat without danger this mushroom. It must be noted, however, that though eaten without fatal result, it is still often a powerful intoxicant.

Mr. Edmund Michael, a recent German writer, says that the fly mushroom is harmless but unattractive if deprived of the skin of the cap.

The fly mushroom then is bad enough, but it seems that there is one still worse. The amanita phalloides, surnamed the "death cup," is generally white, but may be yellowish, greenish, or sometimes brown. It may be smooth on top or have excrescences. In appearance it is attractive and there is nothing to suggest its dangerous qualities. The poison principle is an alkaloid named phallin. This was discovered by Boudier, who called it bulbosin, and by Ore, who called it phalloidin. Kobert has suggested the provisional name phallin. Dr. Thomas Taylor, late of the U. S. Department of Agriculture, writes: "Extensive experiments made by Kobert with ox-blood in regard to the comparative action of different substances in their power of dissolving the red-blood corpuscles demonstrated that phallin in this respect exceeds all known substances." I quote almost verbatim from Circular No. 13 of the U. S. Department of Agriculture, where the symptoms and treatment are there

described by Mr. V. K. Chesnut, assistant in charge of investigation of poisonous plants.

Phallin is a toxalbumen; one of the virulent poisons found not only in plants, but in rattlesnakes and some other poisonous animals. They are the substances that cause death in diphtheria, typhoid fever and Asiatic cholera.

"The fundamental injury is not due, as in the case of muscarin, to a paralysis of the nerves controlling the action of the heart, but to a direct effect on the blood corpuscles. These are quickly dissolved by phallin, the blood serum escaping from the blood-vessels into the alimentary canal, and the whole system being rapidly drained of its vitality"

There is then abdominal pain, and there may be cramps in the legs and other nervous phenomena, such as convulsions and even lockjaw or tetanic spasms.

The pulse is weak, the abdominal pain is rapidly followed by nausea, vomiting and extreme diarrhea; the intestinal discharges at first are red from the blood serum; but later assume the rice-water condition characteristic of cholera. The latter symptoms are persistently maintained, generally without loss of consciousness, till death ensues in from two to four days. There is no known antidote by which the effects of phallin can be counteracted. The undigested material, if not already vomited, should be removed from the stomach and intestines by methods similar to those given for cases of poison by muscarin. After that the remainder of the poison, if the amount of phallin already absorbed is not too great, may wear itself out and the patient recover. It is suggested that this wearing-out process may be assisted by the transfusion of blood or normal saline solution.

I have recently seen it stated that Dr. Calmette, pupil of Pasteur, has found an antidote for the venom of snakes in

the chloride of gold. If this should prove true, it might also be found to counteract the effects of phallin.

In conclusion I have to say that in mushrooms I have found an interesting study, and also many agreeable additions to my tables. I have in the past two seasons tried about one hundred varieties of mushrooms without any unpleasant consequences.

To the beginner I would say avoid all mushrooms with a cup or the suggestion of a cup, especially if in addition the mushroom has white gills. Reject all that are not perfectly fresh or that are worm-eaten. In short gather your mushroom with care, study it well, "and after that to breakfast with what appetite you may."

DISSCUSSION ON DR. ELLIOTT'S PAPER.

Dr. J. W. Duncan of Atlanta: The paper is an interesting one. The pictures shown are beautiful enough to go into a parlor, and while I would like to eat such nice mushrooms as the doctor speaks of, I am still afraid to do so. If I knew as much about them as he does I would probably eat them, but until I know more than I do at present about them I shall abstain.

Dr. I. H. Goss of Athens: I want to thank Dr. Elliott for his valuable paper. Before hearing it I felt on the subject of mushrooms a good deal like the late Dr. Westmoreland did in reference to microorganisms, or "bugs" as he called them. Many years ago Dr. Cooper read a paper before this Association on "Aseptic and Antiseptic Surgery," and Dr. Westmoreland took an active part in the discussion. Reference was made by Dr. Cooper in his remarks to the different forms of bacteria, and their names given. Dr. Westmoreland stated that up to a year or two before, he did not believe in bugs, but since Dr. Westmoreland, Jr., had talked so much about them on his return from New York, he was compelled to believe more or less in them, but

he said he would be damned if anybody could tell the different kinds of bugs. After hearing Dr. Elliott's paper I would not be afraid of eating some mushrooms.

Dr. F. W. Coile of Winterville: I would like Dr. Elliott to state whether he considers mushrooms a delicacy or a nutritious food. As he has tested many varieties he will doubtless be able to answer this question.

Dr. J. H. Shorter of Macon: I would like to ask Dr. Elliott whether he ever uses a mushroom that he is undecided about, or if he has learned them so well that he knows after investigation whether it is edible or not.

Dr Elliott: Many mushrooms are unfit for food, because they are slimy, nauseous or peppery. A man's own senses would warn him against these undesirable varieties. I have never had any difficulty in recognizing the *deadly* mushrooms, as the distinctive marks are so plain. I have eaten about one hundred different species of mushrooms, about one half of which I have been able to identify by the plates and descriptions in the text-books. The others I failed to recognize, but I was sure they were not poisonous.

Mushrooms to be fit for food must be fresh and sound. You can recognize the deadly mushrooms by the signs I have given you. You can easily learn to know a few of the good varieties from any one of the standard text-books. You may soon become familiar with them and be able to distinguish them as you do the flowers in your garden. Once having learned to know a mushroom as good, you can always feel safe in eating it when fresh and in good condition, for a mushroom is never good at one time and bad at another.

I have seen it frequently stated in the books that mushrooms were highly nutritious and that the amount of protein in them varied from eighteen up to sometimes as high as thirty per cent. Up to a few days ago I had no doubt but what this was perfectly correct, but a day or two

since a gentleman showed me a statement from *Science* of experiments that had been made with regard to the nutritive value of mushrooms, and it was found that the nutritive material had been much overrated, so I cannot tell you which is the correct view to take. Most of our recent books, however, state that they are highly nutritious. Dr. Curtis, State Botanist to North Carolina, said he would not have the slightest trouble in summer-time in feeding whole regiments on mushrooms; they would need no meat at all.

A RARE FORM OF BONE ATROPHY FOLLOWING AN UNUNITED FRACTURE AS SEEN BY THE X-RAY.

By EUGENE R. CORSON, B.S., M.D., Savannah.

The following case is so rare and presents such interesting features that I have no hesitation in reporting it with the accompanying radiographs.

Mrs. G., a Swiss, aged seventy, widow, presented herself for treatment at the St. James Dispensary. Though applying for relief from a winter's cough, the peculiar condition of the left forearm attracted attention, and she was found to have an ununited fracture of the two bones of the left forearm at the junction of the middle and lower third. Not only did the hand and the distal portion of the forearm hang helpless, but a paralysis agitans of the entire left side existed.

She gave the following history: Born in Switzerland of healthy parents; one of six children, all healthy, she had enjoyed good health all her life, with the exception of some rheumatic trouble, never severe enough, however, to confine her to bed. She had one child in a short married life. Ten years ago she fell on the right forearm, severely bruising it and causing much pain. She applied to a druggist, who pronounced the bones not broken and gave her a lotion. She was a month in regaining the use of the arm and hand, and has since had good use of it. On inspection it appears to be normal. Five years ago she fell on the left forearm, fracturing both bones, and went to a hospital, where she was treated for one month by a splint and bandage. At the end of that time the non-union was

discovered and an operation advised, which she declined. About six months ago the paralysis agitans developed, but confined entirely to the left side. She has at present a slight senile bronchitis, troubling her only in the winter. Otherwise she is as healthy and vigorous as most women of her age. When examined by the flouroscope, the radius and ulna were found atrophied to points, and I can fine no better comparison of the flouroscopic image of the bones than to pulled taffy. The X-ray examination of the right forearm showed the same condition of the right ulna, though more marked and resembling even more this pulled taffy appearance. All the other bones seemed normal. The accompanying radiographs show this peculiar condition in a striking way. We are led to believe that the right ulna was fractured at the time of her fall ten years ago, though not recognized. If not broken, it must have been severely bruised. On carefully palpating the forearms the absence of the bones is quite evident, and on the right side there seems to be a tendinous union between the divided ends. This is not so apparent, if at all, on the left side.

As there seems to be no relation between the bone atrophy and the paralysis agitans, I shall dismiss this complication with a few words. Whereas Hirt* speaks of paralysis agitans confined to one side of the body as a rare condition, Charcot,† on the contrary, states: "It is much more common to see the tremor confined for a long time to the members of one side of the body (hemiplegic type), or to the two lower extremities (paraplegic type)." As the history shows the bone lesion existed ten years in one case and five years in the other before the appearance of the tremor, and then only on one side, I fail to see any relationship of cause or

* Diseases of the Nervous System. By Ludwig Hirt, New York. 1893.

† Lectures on the Diseases of the Nervous System, delivered at La Salpêtrière. By J. M. Charcot London. The New Sydenham Society, 1877.

effect. The paralysis is evidently in its beginning only, and will undoubtedly increase.

A careful examination of the X-ray negatives shows the following conditions present: The uninjured bones show the eccentric atrophy and osteoporosis of old age. These changes, though apparent in the radiographs, are best seen in the negatives.

Left Forearm.—This is shortened about three inches, but can be pulled out almost to correspond with the better side. The proximal ends of the radius and ulna are atrophied to points, the atrophic process extending up within two inches of the joint surfaces. The bones seem to have melted away like icicles. The distal ends are even more atrophied, and the pointing is more abrupt, giving a heart-shape to the fragments. The radiograph shows well the twisting of the muscles of the forearm. There is an evident calcareous deposit on the styloid process of the radius, a condition present on the right side. There is a slight luxation of the trapezium and trapezoid on to the second metacarpal, which brings the long axis of the scaphoid in line with the long axis of the forearm; this condition is also present on the right side and seems to be a senile change. The elbow joint is normal.

Right Side.—Here the atrophy of the proximal half of the ulna resembles that of the left side, except that the pointing is sharper and the atrophic process has extended higher up the bone. The distal end shows very beautifully what I can describe by no better term than a pulled taffy appearance, the bone dwindling to a thread apparently. The radius is much curved, the bicipital tuberosity encrusted with calcareous deposits. The elbow joint is normal. I know of no similar X-ray findings. I doubt not, however, that some ununited fractures would show a similar condition, though the post mortem records heretofore published would still make this condition a rare one.

A glance at the radiographs suggests at once the thought that we have to deal here with a neurotrophic change, due to a neurotrosis or nerve injury; that this is an acute process, beginning most probably with a halisteresis or washing away of the bone salts, followed by a more or less complete absorption of the bone-matrix, and leaving only the connective tissue to contract into mere fibrous bands or sheaths. The process seems to be for bone what acute muscular atrophy is for muscle, though in all probability a much rarer condition than the latter, by virtue of the fact that bone is more stable than muscle. And this case also strongly suggests the thought that non-union after fractures depends directly upon nerve injury or impairment of nerve function. This question of ununited fractures is a most interesting one, and so far as I know, still awaits a study worthy of present methods of research and present knowledge of pathology. I know no better paper on the subject than the remarkable one by Dr. George W. Norris, one of the surgeons of the Pennsylvania Hospital, entitled: "On the Occurrence of Non-Union after Fractures; Its Causes and Treatment," published in the *American Journal of the Medical Sciences* for January, 1842. Hamilton in his treatise on fractures gives this paper all praise and acknowledgment, though I believe he would have strengthened his own chapter on the subject by quoting Norris at greater length. Norris's monograph certainly represents all that was known on the subject at that time, and it is doubtful if more is known to-day.

Norris describes four modes of non-union:

1. A union by a "callous tumor," remaining cartilaginous and soft, and permitting a free movement of the divided ends of the bone.

2. No union of any sort between the fragments, the ends of which diminish in size, and very movable under the skin; the limb is shrunken and hangs perfectly useless.

3. In this, the most common class, according to him, the medullary canal is obliterated in both fragments, the ends of the bones are more or less absorbed or rounded, or "*are pointed and covered by a tissue resembling the periosteum* (italics mine), and are connected together by strong ligamentous or fibro-ligamentous bands, passing from the extremities of one fractured fragment to that of the other. Sometimes this band of union is constituted by a single ligament, while in other instances it is made up of several narrow bands, having separate attachments; in either case the newly formed substance is firmly adherent to the bones, and if of any length, is in a high degree pliable."

4. In the fourth class of cases "a dense capsule without opening of any sort, containing a fluid similar to synovia, and resembling closely the complete capsular ligaments, is found."

The case before us evidently comes under the third class. Norris describes at length in this paper a case which evidently shows an acute softening and absorption of bone more striking even than the present one, and which points even more forcibly to a neurotrophic change:

A young man of eighteen broke his right humerus near the middle. A good reunion had started when he rebroke the arm at the same place. The ends failed to unite, and a rapid process of absorption went on until "the whole of the arm bone between the shoulder and the elbow was at length completely removed." He adds: "Mr. B. now, after many years, presents the spectacle of one short and one long arm. The right forearm and hand are of a size to correspond with the sound one on the left side, and under certain circumstances are equally as strong. Ordinarily the right arm swings hither and thither, like a thong with a weight at the extremity; for the forearm and hand, with reference to the division above the elbow, constitute a pendulum, oscillating according to the movements of the body. Al-

though it is impossible to push with the defective arm, he can draw a burden towards himself with it as strongly and tenaciously as with the other; and in so doing, the muscles are elongated, so that the arm is extended to its original length; when the resistance is removed, the muscles instantly shorten themselves about six inches. To show the perfect non-resistance of the apparatus of muscles, arteries, veins and nerves in the soft, boneless space, we saw him twist the palm of the hand twice round, which consequently presented the strange anomaly of having all the apparatus of the arm twisted like the strands of a rope." (*Boston Medical and Surgical Journal*, July, 1838, p. 368.)

I have quoted this case somewhat at length, because I believe it shows the same pathological condition that exists in this present case, although, of course, much more pronounced. More important still it shows an acute absorptive and atrophic process dependent upon nerve lesion; it is, in short, atrophic change, and this I believe to be the direct cause of non-union of bone. If we will review this whole question of non-union and all the causes ascribed to it, no one cause is less open to criticism than the lesion of those nerves which maintain the tissues in their normal state or repair them when injured. Certainly the theory of insufficient blood supply, so much dwelt upon, falls very far short of explaining the matter. Norris claims that Guéretin's theory of the relationship between the nutrient artery and the seat of the fracture has not been proven; and this conclusion is shared by Hamilton. In the case which I have quoted, there was a good blood supply, but a blood current which was only too active in washing away the products of decomposition, a blood current that breaks down rather than builds up. If the nerves which control nutrition break down, the blood in itself is powerless to build up. And this would seem to explain the numerous instances where firm union follows fractures under the

most unfavorable conditions apparently, while here and there you see reported cases of non-union ascribed to syphilis, old age, pregnancy and nursing, cancer, fragilitas ossium, scurvy, rickets, general malnutrition, and what-not. A large majority of the cases of fracture even under these unfavorable conditions unite quickly, and if one will note how small the percentage of cases of non-union really is the conclusion is inevitable that a nerve lesion is the direct and principal cause back of which it is impossible to get. In many cases apparently hopeless nature can easily establish a collateral circulation, but she cannot establish a collateral nerve supply; nerve lines are definitely settled.

There is much to be learned on this subject, and it is one which offers an opportunity for original research, whose difficulties should be rather an incentive for working it out.

A SUPERNUMERARY CERVICAL RIB—A DECEPTION OF SKIAGRAPHY.

By HOWARD J. WILLIAMS, A.M., M.D., Macon, Ga.

The subject of this paper having been presented to the attention of this Association for skiagraphic demonstration at the last meeting, I will be pardoned for reporting a mere anomaly to you. I trust, however, that the report will impress upon you one fact for careful consideration, that is—while the discovery of Roentgen was a material advance in surgical diagnosis, it is not an infallible aid. Mistakes in its interpretations can lead to mistakes in operating, and its value as medico-legal evidence is doubtful. Three times during the past year have I been misled by X-ray photography; twice into performing useless operations for lesions supposed to be dependent upon apparent bone injury, and in the present case a supposed tumor proved to be an anomalous rib. Fortunately, the operation was necessary and the results were as satisfactory as they would have been had a tumor existed. Either of the two photographs of bone injury, exhibited in a court-room, would have been damaging evidence in a malpractice suit, had not the operations disclosed the fallacy of the skiagraph.

Miss R. S., aged seventeen, white, in the summer of 1896 noticed that the lower left edge of her collar pressed heavily against some hard substance in the base of her neck, and that her clothing would wear out at this point earlier than elsewhere. There was, however, no pain, nor any discomfort in the left upper extremity. On palpation, I found deep in the posterior half of the posterior triangular space

of the neck a slightly projecting painless mass, having the consistency of bone, occupying a plane below the level of the clavicle, which was not adherent to the skin and could not be seen with the eye. Examination of the axillary space disclosed nothing corresponding with the mass above. Movement of the clavicle and scapula was unattended by motion of the growth; on exaggerated respiratory effort, it would rise and fall with the rest of the thorax. There was no tenderness on manipulation, or any interference with the subclavian vessels and other tissues of the region.

It was decided to be either a prominent transverse process of a cervical vertebra, an exostosis, or a chondroma springing from the first rib. She was directed to watch it carefully during the next few months, and if it grew rapidly or changed in any way, to report.

Early in the spring of '97 she returned, and I found that it had increased in size and projected higher in the neck. It was about the size of a pigeon's egg, and was painless, gave no discomfort, still non-adherent and unattended by any local discoloration. During the meeting of the Medical Association of Georgia in our city in April, she kindly allowed Dr. Samuel Lloyd, of New York City, to take a skiagraph of the region involved before the members of the Association.

A twenty minutes' exposure developed the accompanying radiograph. The plate was bandaged to the back of the neck and shoulder, not horizontally, but with the left edge considerably elevated above the right. (To see the radiograph correctly, hold it so as to bring the clavicle nearly horizontal.) The cathodal rays then passed through her body antero-posteriorly at an angle of about 40 degrees from above downwards and from right to left. The very dark spot to the right of the center of the photograph is a collar button worn in front, the pointed line above it is a long pin worn in her hair at the back of the neck, the cora-

coid process of the scapula is seen to the extreme left. The supposed tumor is obscurely outlined below and behind the clavicle between the button and the coracoid process. It is egg-shaped and occupied a plane apparently below the line of the clavicle and supposed first ribs. This was considered a deception of skiagraphy, explained by the direction taken by the rays in passing through the neck. The growth, as we have seen, really occupied a plane parallel with the clavicle above the first rib, and was disk-shaped, flattened vertically and antero-posteriorly.

Upon the evidence of the radiograph, the physical character of the growth, and the attendant symptoms, we made a diagnosis of osteoma of the first rib; the line of treatment to be expectant—wait for signs and symptoms of interference with important structures and functions. Should an operation become necessary, the clavicle should be divided and the growth removed through this route.

November 30, '97, she came back, complaining of pain in the arm, occasional numbness in the hand, and some slight interference with the circulation. The growth had advanced materially in size and could be seen as well as felt projecting half an inch above the general surface of the base of the neck.

December 15, assisted by Dr. McHatton, Dr. Garrard, and Dr. Weaver, the latter administering ether, I operated. An incision two and a half inches long was made from the middle of the neck down to the clavicle midway between the sterno-cleido-mastoid and the trapezius muscles, parallel to and a quarter of an inch behind the external jugular vein. The tissues were dissected down to the growth, the transversalis colli and supra-scapular arteries being tied and cut, while all nerve filaments were pushed aside as they were exposed. The normal triangles of this region were distorted by the growth, the omo-hyoid muscle being displaced downwards below the plane of the clavicle, the supra-

scapular and transversalis colli being above the posterior belly of the omo-hyoid, the cervical and brachial plexuses pushed into a position posterior to the tumor.

On reaching the upper edge of the growth, instead of finding it encapsulated, the usual conditions found in chondroma or exostosis, I found a muscle adherent to the apex, the fibers of which were directed upwards and backwards to the spinal column. The clavicular and outer surfaces of the growth were exposed by careful dry dissection down to the first rib, to the upper surface of which it was attached by a broad, bony base, just posteriorly to the point where the subclavian artery crosses the rib. In fact, the artery rested against the anterior edge of the growth and was exposed in the dissection. Dissecting backwards, I found the tumor also attached by a narrow pedicle to the spinal column. Detaching the muscle from the apex and dissecting down the inner or tracheal side of the growth, the pleura was separated down to the first rib. These dissections disclosed the fact that a complete arch of bone was found reaching from the subclavian notch on the first rib upwards and backwards to the body of a cervical vertebra. Instead of an osteoma, we had a *supernumerary rib.* From the under or concave edge of this rib to the upper surface of the first rib, muscular fibers passed, corresponding to the intercostal muscles. The bone was isolated from this muscle and cut with bone forceps, first near the vertebra and then towards the first rib; one and a half inches of bone was thus removed en masse, the remaining portions detached by repeated use of the forceps.

All together the rib was about three inches long. The vertebral end was one-fourth of an inch in diameter, the costal end about one-half an inch where it was inserted on the first rib; the latter bone was very much expanded where it received the anomalous rib. The growth, like other bones, was composed of an outer compact layer, covered

with periosteum, and an inner cancellous tissue. In the middle of the section removed a joint existed which allowed, through ligamentous union, a limited motion. The posterior portion of the new rib was, perhaps, an elongated transverse process of a vertebra. From the length and direction of curve of the bone, I judge it was attached to fifth or sixth cervical vertebra, most likely the sixth.

Like the first rib, it was unattended by an intercostal artery. The muscle attached to the apex of the rib was either the entire middle scalenus or a large part of that muscle; the point of attachment of the rudimentary rib to the first rib and its relation to the subclavian artery would suggest this conclusion. The anatomical relations of importance were: In front, the subclavian artery (the subclavian vein and phrenic nerve were not exposed by the dissection); to the outside, the transversalis colli and suprascapular arteries and the brachial plexus; behind the lower cervical nerves coming from the spinal cord; and to the inner side, the pleura.

Going back to the skiagraph, the first arch, the one approached by the point of the pin, is the supernumerary rib clearly defined as it comes from the vertebral column and dips down to the first rib seen below. The egg-shaped spot behind and below the clavicle, which we had supposed to be the esteoma, is now clearly seen, by the discoveries of the operation, to be the expanded costal end of the first rib receiving the attachment of the anomaly. Again, the ligamentous joint is well defined by the interruption in the rib's shadow to the left of the pin. The body of the seventh cervical vertebra, I think, is defined as the dark spot above the center of the pin. The end of the anomalous rib is seen approaching the column above and to the left of the dark spot of the seventh vertebra. Unfortunately, the radiograph is too indistinct to show the body of the sixth vertebra, to which the rib is attached. Could we have excluded

the deception caused by the angle of entrance of the X-ray and recognized the possibility of a rudimentary rib, our diagnosis would have been clear before the operation.

The girl, being in the adolescent years of life, it would be impossible to say to what extent this rib would have grown if allowed to remain. Anomalies have no definite extent of development; pressure upon important organs and tissues frequently attends their growth. It is, therefore, good surgery to remove them as soon as symptoms of interference with important functions arise.

In looking up the literature of the anomalous ribs, I find that Quain describes an occasional supernumerary rib which springs from the body and transverse process outside of a vertebra-arterial foramen. This is, however, a false rib having no distal attachment, like the last or floating ribs of the thorax. I cannot, in the books to which I have access, find any description of a supernumerary rib corresponding to the one I present, that is, a rudimentary rib springing from the sixth cervical vertebra with a single attachment, a complete arch and a long insertion on the first rib.

The patient pursued the usual normal course after aseptic operations, had primary union, and is restored to health without pain or interference with the proper functions of the parts involved.

Since coming to the meeting, Dr. Lloyd has kindly allowed me to exhibit to you another radiograph of an anomalous rib. The patient, also a young girl, presented similar symptoms to those my patient had; she will be operated on when the doctor returns to New York. This photograph exhibits the usual type of anomalous ribs described by Quain.

DISCUSSION ON DR. WILLIAMS'S PAPER.

Dr. Samuel Lloyd of New York: I would like to say a word or two in connection with Dr. Williams's paper, and

first in regard to the mistaken diagnosis. We made a mistake in diagnosis last year which should not have been made. Those of you who were present at the Macon meeting will remember the position of the patient and of the plate; consequently we had an incorrect picture. In all X-ray work we are dealing with direct rays; there is no reflection of the rays. They pass straight through any object that they can penetrate, and consequently if we send them through the object at an angle we are sure to get distortion. Hence, in posing a patient for the X-ray it becomes essential for us to study the position of the tube and of the photographic plate. It also becomes necessary for us to know the point of focus of the tube. If the tube is focused, and we place the patient inside the focal point, we will get enlargement of the bones or an increase in their size, and the photograph is at once deceptive. In order to get the proper photographic effects it is necessary not only to work with the tube but with the fluoroscope, to recognize the fluoroscopic image in order to know when the tube has penetrated and at what distance to give the best results.

Dr. Williams doubts the utility of the X-ray in medico-legal work. The use of the X-ray in medico-legal work, without careful preparation for that work, would do great harm. I offered some suggestions along this line at the meeting last year. To leave a photograph that has to go into court to a single individual, who may be interested in the case, would be a grave error, for he might accentuate the deformity very decidedly by placing the tube a little out of its proper position; and consequently in every case that has to appear in court an X-ray picture should be taken before witnesses who can swear to the position of the photographic plate, the position of the patient on that plate and the position of the tube, and who at the same time can swear to the distance at which the tube was placed from the patient, so that allowance may be made for any distor-

tion that may appear in the picture, and as far as possible to avoid distortion.

The picture of Dr. Williams's case shows at once what distortion we get. The articulation of the anomalous rib with the first rib is distorted, because the rays in passing at an indirect angle through the body threw the shadow of the articular process on the plate below. Had the tube been placed in the median line or directly over the point of articulation we would have found the distortion of the rib on the plate much smaller than it is at present and very much nearer its true size. We must consider this point, that in photographing objects on the anterior surface of the body, with the plate placed on the posterior surface, the object in front will always be larger than it is in reality because the distance of the object from the plate gives a larger shadow than when it is in contact with the plate.

Dr. J. H. Shorter of Macon: I have nothing to say regarding the extremely interesting and rare case of Dr. Williams, but I desire to ask Dr. Lloyd a question or two. I have not had very much experience with the X-ray machine. I was under the impression that the rays went through unreflected, as he says, and unrefracted, and if unrefracted I do not know how they could form a focus. The object to be skiagraphed ought to be at the proper distance. Optically speaking, I cannot understand how it would be possible to have a definite focus for luminous rays which are not refracted. As I understand it, the rays emanating from the Crook's tube pass through direct and are never refracted by anything. I hope Dr. Lloyd will clear up this point. I can understand how the distance of the object to be skiagraphed from the point of the rays should be seemingly diminished because the rays emanate and diverge in straight lines and the farther the object from the divergent point the smaller it seems to be.

Dr. Samuel Lloyd of New York: The points made by

Dr. Shorter are particularly pertinent, because it is true that the ray is neither reflected nor refracted, yet in our X-ray work we use a tube in which the platinum disc is placed at an angle and the rays are driven through the glass over a certain area, and there is a point a short distance from the tube where the penetration is more complete and where the image becomes very much clearer, and this is called in X-ray work the focal point of the tube. It is really a point of clear penetration rather than a point of true focus. It is not due to a drawing of the rays together in any sense of the word; on the contrary, the rays are spreading farther and farther. The farther we go from the tube the larger the area of illumination. At the same time we must remember that within a short distance from the tube the power of penetration is greater than at any other point, and as I have previously said this is the so-called focal point.

Dr. Williams (closing the discussion): I have nothing further to say, except to call attention to one point. The radiograph in the case I have reported illustrates how actual conditions may be distorted. The length of the clavicle in the case of this girl shows that there was a malposition of the shadow or where the shadow was that makes the distortion.

DISLOCATION OF SIXTH AND SEVENTH CERVICAL VERTEBRÆ, WITH GENERAL PARALYSIS.

By T. S. HOPKINS, M.D., Thomasville, Ga.

On the third day of March, 1897, Col. H., a prominent citizen of McIntosh county, sustained an injury, the results of which make the case not only a very interesting but a very remarkable one. From a friend of his who was at his side when the injury was received, I get the following history of the accident:

He was going from his farm, at night, to Darien, on a crank car, to attend a meeting of the Masonic lodge, of which he was the Master. When the car was moving with all the speed that two sturdy negroes could give it, it collided with a wood cart which some little negroes had placed upon the track. The shafts of the wood cart were elevated, and one of them struck him in the forehead, knocking him over backwards, his neck falling across a thin iron bar. From this position he was lifted by his friends in an unconscious condition, and as they supposed dead. In about one hour consciousness was restored, and he was taken on a wagon to the house of a friend in the city, placed in bed and medical aid called. The diagnosis was "shock," prognosis "speedy recovery." Next morning a consultation was had, and the condition of the patient declared a very serious one. On lifting him it was discovered that his head would fall over on his chest, and he would beg to have it lifted. It was also discovered that with the exception of the respiratory muscles, every muscle below the

cervical cord was paralyzed. It was then determined by relatives and masonic friends, whose brotherly love and devotion in this case will be ever memorable, that he be taken to a hospital, where he would have constant attention and the best medical and surgical skill. On a special car he was taken to Savannah and placed in a hospital. The late lamented Dr. Boyd, Hospital Surgeon, took charge of the case. Three or four days after entering the hospital, the neck trouble suddenly disappeared, and the neck became the only unparalyzed portion of the patient. In reply to a letter from me, Dr. Boyd was kind enough to give me his diagnosis of the case, which was "Dislocation of the sixth and seventh cervical vertebræ, with crushing of the cord, and spontaneous reduction by muscular contraction." After three months of hospital treatment the patient was sent home as a hopeless case, the only improvement being a slight ability to move the right leg.

During the months of June and July last, I frequently visited and examined this patient. He was on a very restricted diet; run down, evidenced by muscular waste and atrophy. I candidly informed the members of the family that though he might live for months or years, I feared he would never walk again. As I knew of no curative plaster to apply to a crushed cord, I advised that the restricted diet be abandoned; that physic be thrown to the dogs, and he be allowed to indulge in every article of food he could crave or relish. My advice was carried out. Soon his dyspepsia disappeared. His appetite and digestion improved. He had beefsteak, ham, eggs, oysters, shrimps, crabs, fish, and every variety of vegetables and fruits. Under this treatment he gained flesh and strength. I left him about the first of August last. His condition then was as follows: He had entire control of the right leg and arm. The index and middle finger of the right hand were contracted. He could lift the left arm and hold it in any position except

a perpendicular one, but the hand fell over on the wrist. This was not the result of contraction of the flexors, but the powerless condition of the extensor muscles. The bed sores, so common and annoying in such cases, had healed. The catheter and syringe, for months necessary, were dispensed with, as no longer needed. The left leg was still paralyzed; though patellar reflex and motor power were absent in this leg, sensory power was present, as evinced by a pinch or a prick of a pin. Time and again I would say to him, "Lift this leg; you can if you will," but he always declared that it was impossible. He would make the effort and the muscles would quiver, but the leg moved not. Having observed in cases of locomotor-ataxia that though the patient could hobble about with his eyes open, when he closed them he would fall, I determined to aid the muscular power with the visual power. I uncovered the paralyzed limb so that he could see it, and commanded him to lift it, and instantly the leg was lifted, but fell again. The foot was contracted.

Some two weeks since, by letter, I requested my friend, Dr. P. S. Clark, of Darien, to visit this case socially, without mentioning my letter; examine it carefully, and report to me his then condition. I wanted to get his then condition so as to compare it with his condition six months prior. The doctor kindly complied with my request, and from his report there has been a decided improvement in this case. He says he can draw both of his legs and extend them with perfect ease. He has been out riding in his buggy; has gained flesh and strength, and is looking much better. If he continues to improve in the next six as he has during the past six months, he will be able to walk. I claim no credit whatever for any improvement in this case. On my first visit and examination I endorsed the diagnosis of Dr. Boyd, and was satisfied that it was a case beyond the reach of medicine, and turned it over to the tender care of

Mother Nature, who has often lifted me out of trouble when in despair. After fifty years of practice I have come here to-day in search of information. Can any of you tell me how it is that, while life has been restored to the dead limbs, the bowels and bladder, without any evidence of wound or disease of the cord below the seventh cervical vertebra, power of locomotion is still absent? I presume in this enlightened body we have physiologists, pathologists and neurologists. It is from such that I seek information and explanation. This case has been submitted to a neurologist and a pathologist for their opinion. Neither of them would believe that a dislocation of the sixth and seventh cervical vertebræ could produce paralysis of the upper extremities. I differed with them, and am consoled in the fact that the diagnosis of Dr. Boyd is endorsed by such men as Carpenter and Gross. During this patient's long suffering his intellect has never been impaired. He swore from the first, and still swears, that he will not die, and will ere long be restored to his normal condition. I am now inclined to endorse *his prognosis.* If verified his case will be one without a parallel.

DISSCUSSION ON DR. T. S. HOPKINS' PAPER.

Dr. W. H. Elliott of Savannah: I rise to answer one of the questions asked by Dr. Hopkins, and that is with reference to paralysis of the upper extremity in these cases. Many years ago in consultation with Dr. J. B. Read of Savannah, I attended a woman who was shot directly from behind by a pistol in the fifth cervical vertebra. She lived something less than five days after being shot, and she was paralyzed from the site of the shooting down to the bottom of the feet. She could move neither arm nor leg, nor anything else but her head.

Dr. J. W. Duncan of Atlanta: Some years ago I at-

tended a negro man, who received an injury by a post falling upon him, while he was engaged in tearing down the scaffolding of a new church. He was struck on the back part of the head, causing partial dislocation of the fourth and fifth cervical vertebræ, which resulted in complete paralysis of both the upper and lower extremities. The man was rational and could talk. He lived about thirteen days after the accident. At the post-mortem examination I removed a portion of the cord involved in the partial dislocation, and found that it had undergone degeneration and softening, and the cord substance ran like an ordinary abscess.

Dr. Samuel Lloyd of New York: I am very much pleased to hear Dr. Hopkins's paper as it deals with a subject in which I have been interested for many years. It is now ten years since I published the statistics of over two hundred cases of operations upon the spine for injuries and for Pott's disease, and since that time I have operated upon a considerable number of cases; consequently Dr. Hopkins's case is peculiarly interesting to me. It seems to me that one part of the diagnosis must have been in error, and that is with reference to crushing of the cord. It is evident that the cord was not crushed. A crushed cord never recovers. The probabilities are that the cord was compressed, and from the progress of the case I should suspect that the compression was a hemorrhage and that the absorption of the clot accounted for the recovered power in the cord itself. Most assuredly there was no injury at the time of the receipt of the trauma which destroyed the elements of the cord itself, for had it been destroyed he would have had ascending and descending myelitis with consequent increase in the area of paralysis coming on a short time after the injury. Occurring, as it did, at the sixth or seventh cervical, we should probably have found that the paralysis would have extended upward.

Another point about this case in favor of the possibility of a hemorrhage is that the complete paralysis was apparently delayed, that is, it did not occur as soon as the accident happened; consequently I think we can safely say that this patient had an extra-medullary hemorrhage into the canal compressing the cord, and the patient has been absorbing that clot during the last six years, and that is the reason why he has largely recovered his power. These cases do not always recover. These hemorrhages sometimes remain as a compressing tumor exactly the same as we find in fractures of the laminæ, where the lamina has been depressed and nature has attempted to correct the fracture by throwing out callus, and this callus has become a compressing element on the cord.

I saw a patient last summer from Florida who was shot four years ago, receiving an injury to the right lamina of the seventh dorsal, a fracture of the spine of the eighth dorsal, a fracture of the left lamina of the ninth dorsal, and a fracture of the articular process of the tenth. This man had complete paraplegia below the segment of the cord injury. He had, however, exaggerated reflexes, particularly on one side, so that he had to travel around with his right leg strapped up in order to get along at all. If he let the right leg dangle, it would throw him off his crutches as soon as anything touched him. He had compression by callus over the right lamina. We took out the lamina of all of the four vertebræ, and at the end of four weeks there was adduction and abduction and the reflexes were normal and he is still improving.

About ten years ago I operated upon an engineer who had received a fracture in the lumbar region and had compression from callus at that point. The man is now running his engine, and sometimes doing his own firing, a decided improvement over the complete paraplegia he had suffered from formerly.

There is one other point that appeals to us in the case of Dr. Hopkins as an argument in favor of its being a transitory injury, namely, the disappearance of bed sores. In a case in which the cord is destroyed the trophic changes which lead to breaking of the skin and soft parts go on and the patient finally dies from exhaustion due to ulceration. (The complete paralysis occurred immediately after the dislocation).

PERITONSILLAR ABSCESS.

By DUNBAR ROY, A.B., M.D., Atlanta, Ga.

The reading of this article is more for the purpose of precipitating a discussion than an effort to add any new ideas upon the subject. A great deal has been written by laryngologists concerning the etiology, symptoms, and treatment of acute tonsillitis and chronically hypertrophied tonsils, but very little can be found concerning the manifestations of peritonsillar abscess; and even the various text-books dismiss this practical subject with but few words if at all. Fletcher Ingalls in his excellent work denominates this condition as phlegmonous tonsillitis, giving as synonyms "suppurative tonsillitis," "abscess of the tonsils," "quinsy," "phlegmonous sore throat." To my mind these synonymous terms are incorrect, for in my experience the abscess is nearly always outside of the tonsil. Phlegmonous sore throat is inaccurate because it does not designate what portion of the throat is involved. The practical point of opening the abscess is dismissed with one sentence. Sajous in his text-book makes no distinction in the forms of tonsillitis but considers them all together and the condition of abscess of the tonsil but a final result of acute tonsillitis. He also calls it an abscess of the tonsil and speaks of opening the abscess through the tonsil.

Lennox Browne, while recognizing this condition, devotes very little space to its consideration. He remarks that Cohen uses the term "phlegmonous pharyngitis" as synonymous with tonsillitis, but remarks "that the periton-

sillar tissue is affected rather than the gland itself in phlegmonous inflammation."

Max Thorner in Burnett's System has given a very good description of this affection under the title of phlegmonous pharyngitis.

Dr. C. E. Bean in the same work has also described this affection under the title of acute tonsillitis.

Thus we see various writers differ as to the pathology and morbid anatomy of this affection.

The condition which I wish to speak of to-day, I have designated as peritonsillar abscess. Phlegmonous pharyngitis is, I think, an inelegant term, since it does not indicate the anatomical position of the abscess, and therefore does not differentiate it from similar conditions in other portions of the pharynx.

The tonsils are lymphoid structures situated between the palatine arches, the anterior and the posterior. They are freely movable in their bed, and in the large majority of cases they present fibrous adhesions to both the anterior and posterior palatine pillars. The muscular structures therefore inclose the tonsil on all sides except its free portion. In front the ramus of the lower jaw encroaches so near the tonsil that there is very little loose cellular space left which could be filled with pus and exudate, going to form an abscess. Pus always seeks that region where there is the least resistance. On the other hand the anterior pillar curves around the top of the tonsil and seems to lap itself over the posterior pillar and is lost in the soft palate above. This is what really happens: posteriorly to the tonsil there is quite a loose cellular space which could be filled with pus should the emergency come. This lapping of the anterior and posterior pillar above seems to have formed a triangular space filled with connective tissue and into which the tonsil communicates.

For these anatomical reasons I have never seen a peritonsillar abscess the result of infection through the tonsillar lacunæ but what had its seat posterior to the tonsil. Abscesses which occur anteriorly are, in my experience, the result of suppurative processes from the posterior portion of the alveolar process of the lower or upper jaw on the same side. I have seen abscesses in front of the tonsil of the most painful character which were the result of a process in the last molar tooth.

The question now arises what is the cause of these peritonsillar abscesses? Some authors hold that they are always the result of a previous tonsillitis.

In the light of our present knowledge there can be no doubt in my mind as to the bacterial origin of this affection. It is certainly true that in the large majority of cases, a severe inflammation of the tonsil precedes the formation of the peritonsillar abscess, and yet I have seen cases where the abscess has formed and the tonsil remain seemingly scarcely involved. We all know that there exists normally in the mouth and throat, secretions containing various kinds of micro-organisms; therefore when a tonsillitis does take place there must be superadded something which previously did not exist and much the more so when an abscess is formed. For it is the daily observation to see a case of severe tonsillitis of the most virulent type and yet no abscess is seen to follow. Some authors say that it is due at the time to some lowered vitality of the parts or the whole system whereby the parts are unable to throw off this concentrated poison. Observation certainly seems to contradict this idea unless there is some lowered vitality of the parts not now recognizable to the medical eye; for the worst cases of abscesses which I have ever seen have occurred in persons showing the most perfect physical health.

The tonsillar crypts and ducts are certainly the carriers

of the deadly organisms, for in the large majority of cases these crypts show follicular exudates previous to or at the time the abscess develops. Whatever may be the condition of the parts, one thing is certain and that is this affection is microbic in origin, and the warfare between the leucocytes and the pus-forming organisms certainly results in a victory for the latter.

Must we not in the end be obliged to admit that there exists a peculiar idiosyncrasy in the individual which we are unable to explain whereby his or her throat is liable to the formation of peritonsillar abscesses? One attack seems to predispose to another and there are some people who seem especially liable to just such attacks. I have one patient who usually has one severe attack every winter, yet when the attacks are over the tonsils do not show any pathological changes.

Is it not perhaps the existence of this triangular space of which I have spoken that predisposes to the formation of an abscess? I have always noticed that in persons who suffer from these abscesses the anterior pillar seems to lap more than ever the posterior, and it is but a surmise on my part that in these cases there is a larger posterior cellular space for the filling up with pus.

Rice of New York, in the Cincinnati *Lancet-Clinic*, in a very exhaustive and excellent article on suppurative tonsillitis has this to say in his summary:

"That suppurative tonsillitis is not a correct name because the suppuration occurs in the connective tissue about the tonsils and very rarely in the tonsils themselves. That in people who possess the disposition to suppuration about the tonsils, we find the tonsils either adherent to or covered by the pharyngeal pillars and that this condition plays a more important rôle in the predisposition to suppuration about the tonsil than does the rheumatic or other diathesis."

Such a space affords an excellent bed for the propagation

of pus germs. Nor have I ever seen any special character of tonsil which seemed to predispose the formation of an abscess. I have seen abscesses form where tonsils were small and sclerosed, and again where they were large and lymphoid looking. I have seen abscesses form when the tonsil had been completely removed.

Most writers hold that peritonsillar and tonsillar abscesses are more common in children than in adults, and yet, if one's experience counts for anything, mine is just the opposite. With the exception of two cases only all my cases have been in adults.

The symptoms of this condition are no doubt familiar to all. The pain is severe and especially intense on deglutition, at which moment the patient distorts his face, makes forced movements with his whole body in his effort perhaps to swallow even a drop of saliva. This pain is pathognomonic, and even in the very earliest stages is often indicative of the coming abscess. The pain is due to the inflammatory condition of the muscles of deglutition, and it is for this reason, I think, that so many authors believe that a rheumatic diathesis is at the bottom of it all. This view my observation does not lead me to accept.

The coated tongue, the fetid breath, the half open mouth, the look of pain, who does not recognize these symptoms?

Let us now turn to the practical side of the question, that is of its treatment. Since as I have said the large majority of cases result from a previous inflammation of the tonsil, the question naturally arises, can the abscess be aborted? My views are that if the patient is not one of those predisposed to peritonsillar abscess and the inflammation in the tonsil has started upon its surface, that you may in some cases abort the abscess, but in the large majority of cases you are powerless to stay its course. The treatment of tonsillitis and also peritonsillar abscess naturally divides itself into the medicinal and the surgical. Under the head

of medicinal let us look to see what remedies are suggested by various authors as abortive or curative in their action.

Ingalls says, to use his exact words, "Early in the attack the disease (phlegmonous tonsillitis) may be aborted as in acute tonsillitis in about one case out of four, by the application to the inflamed gland once or twice a day of a sixty-grain solution of nitrate of silver, two or three applications usually being sufficient." Of this procedure I can but speak in the very highest terms in all forms of acute tonsillitis, and in my mind it should be placed above all other remedies. Dr. Ingalls's experience with guaiac is just as mine has been, and that is very unsatisfactory. He believes in sodium salicylate and bromide of potash. He recommends cold applications both inside and outside, but also remarks that some patients are made uncomfortable by cold applications and then hot ones should be applied. He believes in promoting resolution if the abscess cannot be aborted.

Sajous says that we possess a remedy which is a specific in all forms of tonsillitis and that is the ammoniated tincture of guaiac. He prescribes it as follows: one teaspoonful in half glass of milk to be gargled in the throat and then swallowed. He also recommends lozenges of the resin of guaiac. He recommends a gargle of water, hot as can be borne, a procedure which I have long ago found to be a most excellent adjuvant for the relief of pain. As to the use of guaiac I can but say that in my hands it has proved absolutely useless.

Lennox Browne considers guaiac to be almost a specific, and he says further that this action of guaiac "strengthens the rheumatic analogy." He is a great believer in large doses of salicylic acid. He says that sprays and inhalations are useless while ice internally aggravates the pain. Like myself he believes in hot gargles of some mild antiseptic solution. He considers the application of cold exter-

nally by means of the Leiter coil one of the most valuable local applications.

Bosworth thinks "that it is possible to abort an attack within the first twenty-four hours by giving ten grains of quinine and one grain opium, administering a hot footbath, evacuating the bowels by fifteen grains of calomel, to be followed by a saline purgative and giving sodii salicylas and applying locally to the throat sodii bicarb." I must say that this is a most drastic remedy, and if the patient survives it, nothing short of a cure should be his reward.

Max Thorner recommends the administering of large doses of salol in addition to local applications. I am in full accord with this writer who expresses not much belief in cold applications but says "it is much better to begin early with hot fomentations around the neck, hot gargles and hot inhalations, in order to accelerate suppuration and to shorten in this way the duration of the disease."

Dr. C. E. Bean in Burnett's System says that he places more confidence in salicylate of soda than any other remedy. He says that usually permanent relief will be obtained in twelve hours. He administers it in doses of fifteen grains every hour.

Gougueheim of Paris has extolled the use of large doses of salol.

Let us now look to the surgical side of the treatment where the abscess is either suspected to have formed or at least shows all evidences of the same. I will first take the liberty of again quoting the opinions of those who have expressed themselves, and in conclusion will add my own practical ideas to this practical subject.

Ingalls says "pus should be evacuated as soon as discovered." He does not say where the incision should be made, how deep it should go, nor the most usual place for the bulging to occur. These points I consider of very practical value.

Sajous says that the abscess should be evacuated as soon as it is discovered by digital pressure and the incision is made through the tonsil.

Lennox Browne lays down the following rules which I quote:

1. Never to inflict unnecessary pain by useless scarifications on the surface of the tonsil undergoing inflammation.

2. Never to make deep incisions unless there is almost certainty of advanced suppuration. The instrument for making the incisions should be a curved-pointed bistoury with not more than one inch of cutting edge, and the cut should be made from without inwards, so as to avoid the not impossible risk of injuring an artery.

Bean says the abscess should be opened as soon as pus is detected and that it should be done with a bistoury whose cutting edge is an inch long. He also says that the point for opening the abscess is usually "at the upper and anterior surface of the tonsil near the anterior palatine fold."

My observations certainly do not agree with this latter statement. Max Thorner also says that the abscess should be opened as soon as discovered and gives the method of Stoerk for diagnosing the condition. The physician "puts the fingers of one hand externally under the angle of the lower jaw, pressing the skin and all the tissues inwardly, while the index finger of the other hand moves slowly over the infiltrated parts, beginning high up on the soft palate and sliding downwards towards the tongue." The sense of resistance is the criterion for the point to be opened. This is very good for a German method but it is decidedly too rough for an American patient, as it frequently happens that you are fortunate if you can just get in the flat blade of a bistoury between the half-open mouth.

Moure of Bordeaux says "it is the rule to-day not to wait for the appearance of pus before incising the inflamed

tissues." He says further that a peritonsillar abscess should be opened through the anterior pillar by a longitudinal incision.

O. Chiari also advises early incision, even when no pus is discovered, and says the abscess should be opened at the anterior pillar. My own experience certainly does not agree with that of the last two writers.

Gougueheim of Paris deprecates too hasty operative measures in phlegmonous tonsillitis. He admits surgical intervention only in exceptional cases, and that is when the appearance of a whitish transparent spot reveals the purulent focus.

My own treatment of peritonsillar abscess is governed by a rule which I have adopted in the treatment of all patients, and that is the adapting of all treatment to the individual case and not the patient to the treatment. It is the extreme of folly for physicians to have fixed rules in the management of all cases. It might be highly proper in the case of a big strong lymphatic working man to pick up your bistoury and plunge it into the abscess, press its sides and evacuate the same thoroughly, and he perhaps would hardly flinch. But suppose you undertook the same procedure in the case of a highly nervous and sensitive woman, who would even faint at the sight of a knife. Besides it is equally true that the formation of a peritonsillar abscess is not near so painful in some patients as in some others and therefore does not require such active surgical measures. As the majority of abscesses follow from tonsillitis my efforts are always to the abortion of this inflammation, and this I accomplish, if at all, by the administration of a good dose of calomel followed by a saline purge. The tonsil and surrounding pillars are painted thoroughly with a sixty-grain solution of nitrate of silver and this is repeated once daily. I start early with hot gargles of vinegar and hot water, as hot as can be borne, and then hot fomenta-

tions are applied externally. Salol and phenacetin always makes the patient feel more comfortable and for this reason alone I prescribe it.

Recently we have all seen the published reports of the wonderful effect of lactophenin in this condition. According to my experience it is no more good than so much sugar of milk. If then, this does not abort the abscess I increase the use of the hot remedies and wait until I detect fluctuation. In nervous and timid individuals I never try to open the abscess until it is so superficial that the slightest puncture will rupture its walls. Making deep incisions at random without finding pus is an unnecessary and barbarous treatment.

Nor have I ever opened a peritonsillar abscess at any point except above and posterior to the tonsil, notwithstanding such eminent authority as quoted above. Nor furthermore do I make deep incisions with a knife but simply make a small puncture about one-eighth of an inch deep, and then with a strong probe in this opening I push it back into the triangular space described. If there is pus the probe will readily make its way and the presence of pus be detected at the opening. If present the superficial incision is enlarged and the abscess emptied by pressure. I do this rather than make a deep incision, because I have seen such an incision followed by severe hemorrhage and no pus found, and if the patient is at all nervous, be it man or woman, the sight of spitting out great clots of blood is extremely terrorizing. While writing this article I came across two references in the *Laryngoscope* to articles by German laryngologists, whose ideas corresponded with mine. I quote the exact words translated from Killian's article: "Most of these abscesses are located in the depression above the tonsil (fossa supratonsillaris) and between the arches of the palate. To inspect this region the patient's tongue is extended and depressed, the commissure

of the lip is retracted, and the head inclined towards the shoulder of the diseased side. In an abscess of any considerable size one can see an oval bulging of the affected side. This area is cocainized, and by pressure upwards and outwards with a strong probe the abscess cavity can be reached. The opening is then dilated with forceps for several days and antiseptic gargles ordered." Grunwald in the *Munchener Med. Woch.* endorses this method and insists that an abscess that cannot be reached in this way has no connection with the tonsil. In support of this view he reports an abscess of the anterior palatine arch and velum, due to a decayed molar tooth and its alveolus. This last view corresponds so entirely with my own that I feel like taking it as my own utterance. If any amount of pus has formed, noted by a swelling above and to the inner side of the tonsil, I can usually detect the point for opening by simply sliding a blunted probe over the surface and noting the point of greatest pain. My views correspond with those of Lennox Browne, and that is never to do unnecessary cutting.

The question also arises, if the abscess is not opened will it open itself? It most assuredly would but I have never waited for such a result to happen. In the first place it might open while the patient was asleep and cause some dangerous symptoms. Such cases have been reported. Dr. Dunn, of Richmond, Va., has reported the case of a child three and one-half years old where a peritonsillar abscess broke spontaneously followed by such severe hemorrhage that the common carotid had to be ligated. Norton has reported a case of acute suppurative tonsillitis in a girl of four years which ended fatally, the abscess having involved the carotid.

Thus we see that peritonsillar abscesses are by no means an insignificant affair. Every physician no doubt manages

his cases differently, but after all we want to use those measures which will bring the best results.

DISCUSSION ON DR. ROY'S PAPER.

Dr. J. H. Shorter of Macon: I have been very much pleased with the paper of Dr. Roy, and I have a few remarks to make on it. In considering so-called suppurative tonsillitis or peritonsillar abscess, I think we must take into consideration two kinds or more. First, I believe in a minority of the cases that the tonsil itself suppurates, while in the great majority of instances the trouble is not in the tonsil but in or behind the folds. The cause of this infection is undoubtedly due to bacteria. There is one thing which predisposes to it, that is, adhesion of the folds that hold the tonsil itself. Dr. Roy brought out the point, which occurs in rare instances, namely, that an abscess may form after the tonsil has been removed. I find upon investigation that in almost all of these cases the tonsil has not been entirely removed. To remove a tonsil thoroughly is not an easy matter. The impression made upon my mind for a long time was brought out in an article that I read not long ago, the author of which I have forgotten. The paper, however, was read at the last meeting of the American Laryngological Association. In this paper the idea was advanced to remove the tonsil piece-meal under general anesthesia. We seemingly remove the tonsil and yet leave a part of it adherent to the anterior or posterior arches; the irritating secretion accumulates and causes infection, serving as a focus for the development of peritonsillar abscesses. I am quite sure that personal dyscrasia has some bearing on these cases. I differ with the essayist that rheumatism has no influence on it. I think what we call a rheumatic diathesis has a certain influence, although what goes by the name of rheumatism, as all clinicians know, is a

vague thing. It may mean half a dozen different conditions. I think guaiac preparations have a certain effect in the treatment of these cases. Personally, I paint these peritonsillar abscesses with guaiacol and have seen some aborted by it, although nitrate of silver applications may be better.

In the beginning of the treatment, next to the use of nitrate of silver or guaiacol, purgation in my cases has been a valuable thing.

Atmospheric influences, or something of the kind, must bear a causative relation to this disease. I recall a report by an acquaintance of mine, Dr. Beverly Robinson, Visiting Surgeon to St. Luke's Hospital, who placed on record several cases of tonsillitis that were traceable to imperfect drainage in the institution, a condition which was afterwards rectified. Many of the nurses had some inflammatory condition of the tonsils or throat trouble, some of which went on to suppuration, while others did not. Dr. Robinson carefully investigated the matter and attributed it to defective drainage. The plumbing was then overhauled, and there was not another case of it.

Dr. J. L. Hiers of Savannah: I have listened with a great deal of interest to Dr. Roy's paper. He tells us that his excuse for selecting this subject is to precipitate a discussion. He has covered the subject so completely that very little is left for any one else to say. I desire, however, to emphasize the importance of the use of local applications of nitrate of silver in cases of peritonsillar abscess. I beg to differ with him in the use of guaiacol, an agent which has proven very beneficial in my hands.

Dr. J. W. Duncan of Atlanta: I have been much interested in Dr. Roy's excellent paper. I am not a specialist but am doing general practice. I have had occasion quite often to be called to these cases of peritonsillar abscess. In some I could not even get a good light. The patient

has complained that he could not get his breath, that he was almost choking to death. I have depressed the tongue, then took a bistoury and let out the pus. I have never had any alarming instances of hemorrhage from this procedure. It has been my rule, when called to see such cases, to depress the tongue by means of a tongue depressor, and open the abscess.

I agree with the speakers that purgation is a very important thing in the early stage of tonsillitis. We never get good results in aborting tonsillitis when the bowels are constipated. We should always use some purgative as a preliminary measure. I have not had much fear about opening up these tonsils.

Dr. A. M. Burt of Macon: I have listened to Dr. Roy's paper with considerable interest and I like it for two reasons. In the first place, for its conciseness and practicability; secondly, for the lucid manner in which he has described the condition of peritonsillar abscess. A great many of us country physicians have cases of tonsillitis to deal with from time to time, but we do not stop to consider the different forms of the disease. Dr. Shorter in his remarks spoke of two varieties of tonsillitis, and Dr. Roy alluded to the disease being complicated with decay of a molar tooth, or some inflammatory condition in the posterior part of the tonsil. There is another form of the disease I have seen which occurs in chronic enlargements of the tonsil in which we will find embedded a white substance, probably the solid constituents of the natural secretions of the tonsils. Then, too, we will find little holes in the tonsils. In some cases these openings are small, and a tonsillar abscess forms which can be easily opened and the pus evacuated. In one of the varieties of tonsillitis the doctor speaks of opening the tonsil at its upper anterior aspect, because it is at this place that it develops most commonly. In a great many cases of tonsillar abscess after

deeply incising them I have found no pus, due, I suppose, to the fact that the abscess had formed on the outside instead of within the tonsil.

I wish to express my appreciation of this excellent paper because it brings to the minds of general practitioners practical points that they can use in their practice.

In this connection I recall the case of a healthy looking woman that came under my observation in Macon. She said she had a sore throat. On examination I found the tonsils very much enlarged, and told her that she had nothing more than an abscess of the tonsil which could be easily opened and relief afforded her. The tonsil was very red and considerably enlarged. I could not discover by palpation any positive indication of the presence of pus, consequently I did not think it necessary at that time to operate. The next day the patient was very much displeased because I did not incise the tonsil at her previous visit. I again examined it and saw that it was necessary to open it. She had had no constitutional symptoms, but she did have a violent pain, and said she was almost dead. I followed the line indicated by Dr. Roy in this case, preceding my treatment with a big dose of calomel. She recovered nicely from the operation, but suddenly died two or three days later. I have never been able to find out the cause of death. This case shows that cases of peritonsillar abscess may become grave. It is very necessary for us in this class of cases to know when to cut, where to cut, how to cut and what to cut for.

Dr. J. M. Crawford of Atlanta: It has been my observation that very few cases of tonsillitis result in the formation of tonsillar abscess. Just why we have in some cases the formation of an abscess and in others simply an inflammation, I do not know. When I see a case of tonsillitis I am constrained to ask the patient as to his or her habits, whether they have had tonsillitis before or not, whether

they have had tonsillar abscess, or whether it has simply been tonsillitis. If they have been in the habit of having tonsillar abscess, I should expect in a few days to detect pus and be able to evacuate it. I have never used nitrate of silver applications in these cases; I have always used guaiacol, and while I do not expect to get any good from it, I was taught to use it. I do not remember ever getting any beneficial results from its use. I use the knife freely in cases of tonsillar abscess. We see patients from one to five, or from five to eight days before the tonsillar abscess has completely formed, and sometimes we can find pus. I always carry my bistoury with me during my visits and use it almost daily. If you have a tonsil that is swollen very much, you will find the patient will tell you that he experiences great relief from local blood-letting. It helps these patients wonderfully. I have never had any trouble from hemorrhage following this kind of operation. In using my knife I am particular to cut only that part of the tonsil which is projecting most. Besides the purge I use a hot salt water gargle. The guaiacol I use as a placebo. I use salol, five to ten grains every three or four hours. Some of you have undoubtedly used salol more than I have, and I would like to know whether there has been any trouble with the kidney from its use. I have been deterred in some cases from using salol by a physician who called me in to see a patient with him in which he feared to give it in the size doses that I would administer it, five to ten grains every three or four hours. When salol is given in this manner I have not had any trouble from it.

Dr. O. T. Kenyon of Weston: I desire to say a word or two with regard to the treatment of acute tonsillitis. My standard remedy, and one upon which I have placed more reliance than any other internally, is salicylate of soda. I believe it will abort acute tonsillitis if administered early. Of course, the bowels should be kept open. I have used

guaiac in the form of lozenges so as to get the local and general effect.

With regard to cold or hot applications I quite agree with Dr. Roy that hot applications are preferable to cold ones. I have heard one or two specialists recommend the use of ice internally to abort acute tonsillitis, and my personal experience has been so unsatisfactory with it that I do not think I will ever use it either upon myself or on a patient again.

Dr. Hunter P. Cooper of Atlanta: I wish to add my testimony to that of Dr. Crawford regarding the surgical treatment of suppurative tonsillitis. Personally, I have very little faith in the abortive treatment. It has been my practice for years to incise these tonsils early and often. As to the barbarity of the treatment referred to, I have found that it gives patients great relief and in most instances it causes very little or no pain. Patients have repeatedly told me that they have suffered very little pain while their tonsils were being incised, and after the pus was let out great relief followed. I use an ordinary curved-pointed bistoury, push it into any part of the tonsil and simply make a deep puncture.

As to the point where we get pus, I have found pus oftener in the anterior arch of the palate than at any other point, and in almost all of the abscesses that I have opened in the tonsil the work has been done by means of a vertical incision near the edge of the anterior arch of the palate.

The strongest point in the surgical management of peritonsillar abscess is the one mentioned by Dr. Crawford, and I am certain that if the members of the Association will try it in the treatment of these cases they will get good results from it, that is, frequent puncturing of the tonsil in different places with the long-pointed bistoury.

Dr. Chas. J. Montgomery of Augusta: In the treatment of tonsillitis salicylate of soda internally, and guaiac

in the form of lozenges, dissolved slowly in the mouth so as to get the benefit both of its local and constitutional effect, I have found to be the two most valuable remedies in my experience, in addition to gargles or applications made directly to tonsils. I have been much disappointed with the effect of ice dissolved in mouth, and believe the results obtained from the use of heat, both internally in the form of gargles, and externally especially as dry heat, to be much more satisfactory.

Dr. Roy (closing the discussion): I am much gratified that my paper succeeded in eliciting a free discussion. I knew that the gentlemen who took part in the discussion would branch out on all points connected with this subject. Some of the gentlemen have gone a little further and have not confined themselves to peritonsillar abscess. They have referred to diffuse tonsillitis. There is a great deal of difference where you see redness extending all over the tonsil and the pillars. When you have redness of the pillars you may have hardly any redness in the tonsil itself. I called particular attention to the different forms of inflammation of the tonsil in my paper, and showed that a superficial inflammation of the tonsil could be very frequently aborted by the application of nitrate of silver, sixty grains to the ounce. I have resorted to scarification of the tonsil hundreds of times, but I have not been often so fortunate in dealing with my patients as some of the gentlemen who have spoken. My patients have been very sensitive to the use of the knife, unless the tonsil was thoroughly cocainized. There are a great many sensitive patients upon whom we cannot use a knife in cases of peritonsillar abscess. If we can relieve them by some equally as good measure without causing any pain or discomfort it is our duty to do so. It is very essential that we should select our cases for the reason that all patients are not alike. I find that after incising the tonsil, relief is only temporary, perhaps lasting for a

few hours. It does not last as long as it does when we apply nitrate of silver, sixty grains to the ounce.

With reference to opening the tonsil, that is a point that I particularly desire to bring out. We have to speak according to our own experiences, which is a good deal more satisfactory than theorizing and obtaining information contained in some of the books. Much of the information on this subject that we get from the books does not amount to a row of pins. Our own experience is a better guide. So far as I am individually concerned, I never open a tonsil anteriorly. When these tonsillar abscesses form we find that the crypts are filled with cheesy exudates, probably running all around the tonsil, and while you may run the knife far back where the abscess appears to exist, yet you do not get any pus. It is outside of the tonsil and there is a space which can be demonstrated anatomically where the anterior pillar curves over the posterior. There is a space behind the tonsil which is filled with cellular tissue, into which exudate can be poured and pus formed. It causes the tonsil to project anteriorly. If you make a small incision just behind the tonsil, by enlarging it a little, the pus will exude from the opening.

Lastly, I wish to emphasize the fact that we cannot treat all patients alike. Some of them have nervous temperaments and we have to treat them accordingly. In other cases we can use the bistoury, resort to active measures, and find it is perfectly satisfactory.

REPORT OF TWENTY-NINE SUCCESSFUL CASES OF TRACHEOTOMY FOR FOREIGN BODIES IN THE AIR PASSAGES.

By W. F. WESTMORELAND, M.D., Atlanta.

This paper is limited to the discussion of tracheotomy for foreign bodies in the air passages in children.

While tracheotomy per se is a simple operation, and on the cadaver one of the easiest, anatomical anomalies or various complications at the time, or arising as the operation progresses, may make it formidable enough to tax the skill of an experienced surgeon.

That the condition is a serious one is illustrated by Weist's Study of One Thousand Cases, in which the mortality is 23.20 in cases not operated upon and 27.42 in those subjected to operation.

The literature of this subject is chaotic, contradictory and filled with unreasonable statements. Much of it has been copied, and in this way brought forward from period to period by different book-makers. And in this way a worthless heritage has been preserved without rhyme or reason. The statistics are worthless, not being based upon any idea of pathology or modern wound treatment. The majority of the operations are unscientific in suggestion and execution. The descriptions of these operations are frequently ambiguous and absurd, showing neither study nor reflection, and are replete with nonsensical directions.

The mortality rate, like the literature, is bad. Both are a reflection upon modern surgery.

How do these patients die? They *choke* to death, or die

of preventable infection. (Weist's Table, 937 cases, 232 deaths; cause of death: asphyxia 103, infection 121, hemorrhage 8.)

These are surgical cases, and immediate surgical interference is indicated.

The immediate danger is asphyxia; an immediate operation makes asphyxia absolutely impossible.

The secondary complications are inflammatory or irritation plus infection; an immediate aseptic operation practically eliminates all danger of infection.

Any appreciable mortality from hemorrhage is an evidence of the operator's lack of skill. Irritation as a cause of subsequent infection will be considered later.

FOREIGN BODIES IN THE AIR-PASSAGES—A STUDY OF ONE THOUSAND CASES TO DETERMINE THE PROPRIETY OF BRONCHOTOMY IN SUCH ACCIDENTS.

J. R. WEIST, M.D.—*Transactions of the American Surgical Association, Vol.* 1, 1881—83.

Asphyxia.....103 Infection .....121 Hemorrhage.. 8	Total Number.	Recoveries.	Deaths.	Per cent. Recoveries.	Per cent. Deaths.	Asphyxia.	Pneumonia.	Exhaustion.	Broncho-pneumonia.	Abscess.	Laryngitis.	Consumption.	Hemorrhage.	Other Causes.
Cases without operation.....	599	460	139	76.79	23.30	84	26	4	7	10	5	3	...	...
Cases of operation...	338	245	93	72.48	27 42	19	32	15	...	...	...	...	8	19
Total.	937	705	232	.....	.....	103	58	19	7	10	5	3	8	19

I use this table because it is compiled from cases collected from all sources, and is therefore valuable for comparative purposes. The deductions are as follows: The presence of a foreign body in the air passages does not make bronchotomy necessary, nor should it be performed unless it

causes dangerous symptoms. Some surgical text-books of the last year teach the same principles.

The anatomy of this region is so loosely described in our anatomies and surgeries, that those who have not studied it specially, have no adequate knowledge or proper appreciation of the relative size of the organs involved, or the character and size of the space within the limits of which the operation is made; and it is due to this lack of knowledge that so many serious accidents, frequently in the hands of skillful surgeons, have occurred.

A few words in regard to the relative size and length of the trachea. There are from sixteen (16) to twenty (20) tracheal rings, but only six (6) or eight (8) extend above the sternum (Holden). While the distance between the cricoid cartilage and the sternum varies greatly, the average full distance is, in a child between three (3) and five (5) years, one and one-half (1½) inches; in a child between six (6) and seven (7) about two (2) inches; in a child between eight (8) and ten (10) years two and a quarter (2¼) inches; in an adult two and three-quarters (2¾) inches. A two-inch exposure is increased about three quarters of an inch by full extension.

The diamater of the trachea is:

	Under 18 months. ..... 4 m.m	Syminton & Guernsant, Treves, 134—V. II.
(1)	1½ years to 2 years..... 5 m.m	
(2)	2 " " 4 " ..... 6 m.m	
(3)	4 " " 8 " ..... 8 m.m	
(4)	8 " " 12 " ....10 m.m	
	12 " " 15 " ....12 m.m	
	Adults .....12 m.m to 15 m. m	

I refer those interested in the anotomy and the anomalies of this region to Dr. Pilcher's classical article "Anatomy of the Anterior Median Region of the Neck." Of a thousand cases, seven hundred and twelve were under ten years of age. So over two-thirds of the operations will be made

upon a trachea less in circumference than a lead pencil and within a length of from one to two inches. I think a proper appreciation of this will prevent such accidents as cutting completely through the trachea, or missing it entirely. Anesthetize with chloroform, but not beyond the point of restoring consciousness promptly when the chloroform is suspended. Carry it only to the point of quieting; there is no pain in this region after the skin incision.

The operation of *selection* with me consists in opening the trachea at the first ring and including as many succeeding ones as are necessary. The objection to crico- or laryngo-tracheotomy are, that cricoid cartilage is very narrow and rigid, incisions through it may injure the voice, and it is harder to close. The low operation or those below the isthmus of the thyroid gland present even graver objections. The trachea is deeper, smaller, more movable, having no steadying muscles. The anomalies are more frequent, veins are larger and transverse branches more frequent. Some of the larger arteries are occasionally found in this space. A large thymus gland may embarrass the operator. The lower the wound in the trachea, the greater the danger of sepsis and broncho-pneumonia.

Bose's operation is the separation of the fascia, which holds the thyroid isthmus, by a transverse incision along the upper border of the cricoid cartilage. This allows this fascia and the isthmus with its veins to be displaced and drawn downwards, exposing more rings of the trachea. The objection to this is the time it takes, it uncovers the trachea which cannot be closed as securely, and increases danger of infection by pocketing secretions.

The Operation.—The usual suggestion to grasp the trachea between thumb and forefinger of left hand to steady and make prominent the trachea, I think bad teaching. The compression necessary to accomplish this is apt to displace the skin, which is very mobile, from the median

line, and may press all the vessels toward the median line.

I use a medium heavy scalpel with a long convex (bulge) cutting blade, having the sharpest, keenest edge possible. This character of knife does not require much force in its use, and held as a violin bow is held, with a light free-hand movement, rapid clean dissecting is accomplished without danger of incisions being uneven in depth.

Fix the landmarks by a careful examination, and keep in the median line. Make the dissection in four layers. Begin the skin incision well above the cricoid cartilage and make it of good length; passing through the skin and superficial fascia, the white line separating the muscles is usually seen. If it is not present, locate the median line and they are easily separated as a rule. This exposes the last layer. At this point the greatest difficulties to dissection are met with. Longitudinal vessels should be retracted to either side; transverse vessels cut between two forceps and ligated. I make it a rule to ligate all vessels as they are cut, and keep my incision dry and free of forceps. When the breathing is bad and there is much venous congestion of the neck, there may be quite a hemorrhage from the small veins. Forceps them, they will cease bleeding when the trachea is opened and the lungs fill with air.

When the white rings of the trachea are exposed, a decision must be reached as to the necessity of cutting the thyroid isthmus. If there is not a sufficient space between it and the cricoid cartilage, I cut the isthmus till I have the required room. When this is necessary I try to secure the superior thyroid artery in advance. I am satisfied that the dread of hemorrhage from a section of the isthmus is exaggerated, as I have cut it completely through in a number of cases and have never experienced any embarrassment in controlling the hemorrhage. The trachea is now opened, the length of the incision being determined by the history of the size and character of the foreign body.

I have never found it necessary to fix the trachea with a tenaculum. With a small round half curved needle, with piercing but not cutting point, I pass a silk thread through each side of the trachea and knot both ends of each thread immediately after opening the trachea. In the majority of cases, the foreign body is blown out or into the opening within a few minutes after the trachea is opened. If it is not the tracheal wound is kept open until it is. No attempt is made to hasten its expulsion, nor are any instruments introduced into the trachea for any purpose. I have waited for from a few minutes to five days before the foreign body was expelled. The use of probes or forceps or tracheotomy tubes, by the mechanical violence, adds to the irritation and the subsequent inflammation if it is not already present, and increases the danger of infection.

At this stage of the operation (that is, after the trachea is opened) I divide these cases into three different classes for further treatment.

In the first two classes the foreign body is supposed to have escaped at the time of operating.

First class are those cases that can be closed immediately after the removal of the foreign body; the patient is seen and the operation made shortly after the accident; the foreign body comes away promptly, the mucus that has accumulated in the trachea as the result of the slight irritation is coughed out, and the trachea is ready to be closed in a few minutes. I close the wound with three separate layers of interrupted silk sutures, the first through the membrane of condensed areolar tissue, closing the trachea with a mattress suture with needle already mentioned, also the isthmus of the thymus gland, if it has been cut, the second bringing the muscles together and the third the skin. I place a few strands of catgut at the lowest angle of the wound for drainage, and then dress antiseptically. In

these cases union is secured by first intention with no perceptible scar.

Second class are those that are operated on after considerable irritation or inflammation has been set up, either by the length of time the foreign body has remained or on account of its roughness. In these cases, though the foreign body may come away promptly, it is not safe to close the wound on account of the immense accumulation of mucus. I pass the silk threads through the edge of the tracheal incision and keep the trachea open until it is comparatively clear, then allow the edges of the trachea to come together as close as they will. I place over the wound a handful of loose bichlorid gauze and hold in place with a lightly applied bandage. This dressing will protect the trachea and wound, but will still admit of the mucus that does not easily escape through the mouth, being coughed through the opening into the dressing; sutures are placed and protected.

I have found that where the wound is protected from the air, etc., in this way, the inflammatory symptoms subside much more rapidly and the silk threads can be removed and the wound closed in a short time in the manner mentioned already.

Third are where there are not only the results of the inflammatory trouble but where the foreign body does not come away at the time of operation. In these cases a loose antiseptic dressing is applied. The wound is dressed as often as is necessary. A loose dressing will not prevent the escape of the foreign body. When it escapes the wound is closed and we have prompt union by second intention.

These cases, while not common, occur frequently enough to deserve more than passing notice from those who may be called upon to operate upon them, as frequently the general practitioner as the surgeon.

Before I operated myself, I had the opportunity of study-

ing several cases and upon them I based the following views:

The length of time that has elapsed since the occurrence of the accident plays an important part in the seriousness of the symptoms. For we can positively say that in proportion to the time that has elapsed before operation will the percentage of mortality increase.

The symptoms for convenience may be divided into three stages, 1st, obstruction immediately following the accident; 2d, irritation produced by its presence; 3d, inflammation at a later period.

Of course there are no distinct border lines between these stages. In the first stage the patient may die from asphyxia due to the size of the object, or it may become caught in the glottis and produce a fatal spasm. This may occur from any object. If the object is irregular in shape or has sharp outlines, the stage of irritation rapidly supervenes, and by mechanical injury to the delicate mucous membrane of the air passages makes open the pathway for general infection and inflammation, and the micro-organisms of pneumonia, always present in the upper respiratory passages of man, find a ready soil for their propagation.

The twenty-nine cases I have since successfully operated upon in every respect bear out the principle I laid down for my guidance. That the certainty of the presence of a foreign body in the air passages makes an operation for its removal immediately necessary, and from this rule I make absolutely no exception.

DISCUSSION ON DR. WESTMORELAND'S PAPER.

Dr. K. P. Moore of Macon: I was very much interested in Dr. Westmoreland's lucid description of the operation, and I agree with him fully in all of the points that were brought out with the exception of one. I fully concur with him as to not waiting in any of these cases of foreign

bodies in the trachea, and I believe he is absolutely right in taking that position. There is one point on which I do not agree with him, that of waiting so long after incision is made before attempting removal of foreign body, and yet it is one that might be settled by outside circumstances in each individual case. The third operation I ever did was for the removal of an ordinary pole bean which got in the trachea some days previously, and possibly had lodged in one of the bronchi. The swelling was so great that I questioned whether the foreign body would ever have passed out without some attempt to dislodge it. I suppose, if we could, in these cases, know the character of the foreign material we could then be governed somewhat as to our efforts in trying to dislodge it. The longer a foreign body like this bean remains, unless disintegration takes place, the tighter it would be fixed. So in this case before probing, some time was allowed before an attempt was made to dislodge it. It proved after it was gotten out, from the swollen condition, that it probably would not have dislodged itself, and so by considerable probing it was loosened, and excited a severe paroxysm of coughing on part of the child, and the foreign body became dislodged from the place where it had impacted itself about the swelling and came up into the incision so that it was easily gotten out by the use of applicators.

I think Dr. Westmoreland's plan is a good one, of having a thread on either side to hold open the incision in the trachea, but in cases of little children, dying from croup, we have not time to put in sutures. I usually provide myself with a couple of small tenacula, and by holding the tenacula on either side of the incision the trachea is kept open, and in a large proportion of cases the foreign material is coughed out.

Dr. J. M. Crawford of Atlanta: While my experience in this operation is rather limited, yet it will probably be

interesting to some of you to relate it. I operated on a little boy two years of age last summer for a supposed melon seed in the trachea. The little fellow was brought to me some eight or ten days after he had swallowed the seed. He had a cough that denoted some foreign substance in the trachea. Not being satisfied myself, I called Dr. W. S. Goldsmith to see the case to concur with me in the opinion that there was a foreign body present. We examined him fully with stethoscope, listened to the cough, advised operation, and made it the same afternoon. The operation is rather simple and after it is seen once it can be done by any good operator. I watched the child daily for ten days, redressed the wound, but did not find any foreign body. After relieving the stridulous cough there was no further trouble. After keeping the child under observation for ten days the stitches pulled out, hence I could not make closure of the tracheal wound. I pulled the edges of the skin together as well as possible and closed the wound. It has been eight months since the operation was done and the boy has gotten along splendidly. He has had no further trouble from foreign body in the trachea. I do not know what it was if it was anything. It might have been some melon pulp, and it might have gotten out of the wound onto the dressing.

Dr. Howard J. Williams of Macon: When we operate on the trachea for the removal of a foreign body the foreign body does not come out immediately. I operated on a case a short time since in which a husk of corn came out, and it was not expelled by any force, but gradually drifted out onto the dressing that was on the wound. It being the first case I had had I was very much disappointed that I did not get the foreign body the first time when I made the incision. Whether a small object, such as a husk of corn, would come out as quickly as a full grain or watermelon

seed, I do not know. A husk of corn is light and possibly it would not be thrown out as quickly as a grain.

Dr. J. G. Hopkins of Thomasville: I would like to ask Dr. Crawford if the boy coughs any now.

Dr. Crawford: No. He is entirely relieved.

Dr. Hopkins: While Dr. Crawford was speaking I recalled the history of a case that occurred at the clinic of the Atlanta Medical College about twenty-five years ago. Dr. Willis Westmoreland, the great, was conducting the clinic at the time. I relate the case to show that even such a man as Dr. Westmoreland could be mistaken in diagnosis in cases of this kind. The young man played in a band in Atlanta at that time. He came to the clinic frequently and had been under treatment for quite a long time. Not only Dr. Westmoreland, but other physicians, thought it was a case of tuberculosis. The young man ran down in health, coughed a great deal and was rapidly declining, until suddenly one day he coughed up a cockle-bur that had been in the trachea for a year or two.

Dr. Westmoreland: For nine years, doctor.

Dr. Hopkins: I do not remember the exact time. The foreign body was embedded in mucus; the little prongs, or interstices between them, were filled with mucus. The man, notwithstanding a pulmonary abscess and nine years of coughing, got well and I believe is in Atlanta to-day, playing a brass horn.

Dr. Westmoreland (closing the discussion): The case reported illustrates how we can have a large foreign body in the trachea without any irritation, as illustrated by this hairpin. There was no irritation because the foreign body was immovable, the moment it entered the trachea it became stationary; the only sound was a peculiar whistling sound. The greatest irritation was caused by a grain of corn which presented a number of rough edges. Infection in that case was quite rapid on account of the roughness of

the edges of the corn. I would like to ask Dr. Crawford if coughing in his case did not cease suddenly.

Dr. Crawford: He would have spells of coughing now and then.

Dr. Westmoreland: Did not the character of the cough change suddenly?

Dr. Crawford: He had a spell of coughing which lasted for thirty minutes after the operation was made, then I believe it suddenly ceased.

Dr. Westmoreland: In Dr. Crawford's case it may have been a piece of the pulp of a melon, and that may have passed away with the mucus or dressing. The little object I have here is a piece of peanut which caused more trouble than any case I have operated upon.

The main point that I want to impress upon you in connection with these cases is the question of infection. These patients are very apt to die in a short time, either from asphyxia or from infection, and infection depends upon the length of time the foreign body has remained and its power of irritation. The longest case in which a foreign body was present, I believe, was the cockle-bur case. It produced no sound at all, but there was a grating at the lower portion of the trachea where the operation was made. These foreign bodies are not fixed by themselves. A heavy body by its weight will drop into a bronchus and go any distance. The foreign body is simply fixed by the mucus. If you operate upon the trachea and furnish efficient drainage, you allow the rapid escape of the mucus. If you do not operate the result is there will be an accumulation of mucus, the mucus becomes an irritant, and holds the foreign body in the trachea. There is no use in probing as far as the bronchus to find a foreign body, particularly if you do not know which side it is on. Any instrumentation in the trachea or the bronchi simply increases the danger of infection, the same as the danger of infection is greater

in proportion as you introduce instruments into a wound. I have known men, for instance, to introduce the tracheal mirror into the wound without having taken the trouble to make it aseptic before its introduction, thus increasing the danger of infection. The lower you make the opening in the trachea the more danger there is of infection. There is more danger from an incision below the isthmus than one made above it. If you resort to early operation you cut short the danger of infection. In two of the cases that I have had there was decided broncho-pneumonia at the time of the operation, but it cleared up rapidly, and I am satisfied that in one case if the child had gone twenty-four hours longer without an operation, the broncho-pneumonia would have killed it.

In regard to using anything in the wound to keep it open, I think probably in Dr. Crawford's case that between his visits whatever foreign body was there was expelled. These foreign bodies, under those circumstances, are not expelled by violence. They may come out in a few moments. Sometimes if the foreign body does not come out with the dressing it appears at the edge of the wound, and can be easily extracted with forceps.

Dr. Hopkins in relating the cockle-bur case that occurred in Atlanta, did not give the history of it accurately in one respect. The boy had swallowed a cockle-bur, but had recovered from the symptoms rapidly and afterwards developed a circumscribed dullness in his right lung, and it was not known as to what that was due. There was a slight tubercular history in the family. Some years after he had an abscess which opened externally. I have forgotten the exact number of years, but I think it was six or seven years after, he was taken one day with a violent fit of coughing, and felt something in his mouth, and when he had coughed it out it was a cockle-bur. Immediately after that the external wound closed.

The interesting feature in this case was that the man belonged to a band, and his position that of cornetist. I have no doubt the lung exercises from playing continually in a band which practically furnished all of the music for Atlanta at that time, kept the air vesicles distended, thus preventing a larger area of consolidation of the lung.

THE CONDITIONS OF IMPERFECT DEVELOPMENT OF THE SEPTUM BETWEEN THE MOUTH AND NASO-PHARYNX, USUALLY TERMED CLEFT PALATE.

By M. F. CARSON, M.D., Griffin.

In order to place their treatment on a more scientific basis I will first consider the physiology of the nose, which means a consideration of the mechanical factors that determine the form and development of the nasal cavities of the upper portion of the pharynx usually described together as the "naso-pharynx." We shall then be better able to formulate general principles on which our methods of treatment may be most advantageously based.

The principal function of the naso-pharynx is to transmit air into the lungs, in order that the sensitive surface of its mucous covering may become affected by substances contained in it. In short, this part of the body is constructed essentially for the purpose of smell, and in the different group of animals the degree of its development varies with the importance of the sense of smell to them. The olfactory nerve is distributed to the upper portion of the nasal cavities, and the current of air is distributed especially over this area by the act of sniffing. During natural respiration the mouth is kept closed, the upper lip covering the upper incisor teeth entirely. During normal respiration the air passes mainly through the lower meatus, while there is practically no current in the upper portion of the cavity.

It is therefore very obvious that any obstruction suffi-

cient to interfere with the caliber of the lower nasal cavities, will eventually impair their capacity for performing the functions for which they are intended, namely, the transmission of air, and as a direct result the patient breathes through the mouth. When this is done air enters so freely through the larger and more direct channel formed by the mouth that it ceases to pass through the nose. The most important function of the part is lost, and the forces which act upon it normally to develop it are in abeyance. After air has entirely ceased to pass through the nose in respiration, it does so during the expiratory process of vocalization to a small degree. The so-called nasal intonation does not develop as early as one would imagine in association with so much loss of nasal inspiration.

It is at once visible from an examination of a vertical section through the nasal cavities, that the caliber of the lower part of the cavities, or of their respiratory section, is enormously encroached upon by any ascent of the hard palate above its normal line, and that the air-transmitting capacity of the naso-pharynx varies inversely to the height of the palate. We also see that the caliber of the entire nasal space is very much affected by the slightest variation in the interval between the septum and the structures forming the outer wall of the space. We all know how exceedingly common are these cases of imperfect development of the nasal cavity. I believe that if we exclude those diseases of the nose, ear, larnyx and even lungs, which are either directly or indirectly consequent upon some imperfect development of the naso-pharynx, a not unimportant portion of the consideration and treatment of the disease of these parts would have to be deleted from books on this subject. It is essential, therefore, that we carefully consider the factors which are responsible for such imperfect development, in order that we may save our patients from numerous complications which may not at first sight seem

directly dependent upon it. I believe that such poorly developed conditions result mainly from the fact that for some reason the mechanical factors that aid in the development of the naso-pharynx are removed and as a result this space does not develop as it should. We should not forget the fact, however, that some children inherit a degree of development which is less than the normal. Personally I believe that the transmission of this particular condition is very direct and rapid. The absence of this developmental factor is caused by the infection of the mucous membrane of the nose so commonly called a cold in the head. This inflammation produces swelling of the mucous membrane which interferes sufficiently with the entry of air and renders it necessary to breathe through the mouth. This at once deprives the naso-pharynx of that factor upon which it is solely dependent for its development and growth, namely, the pressure of air upon its walls, and as a consequence it ceases to increase in size. The interval which separates the septum and the outer wall of the space remains unchanged, and the septum between the mouth and nose does not descend, the arch of the palate remaining abnormally high.

The infection of the nasal mucous membrane sets up an inflammation of the lymphatic mass in the pharynx often called the pharyngeal tonsils, and later the lymphatics of the neck which receive lymph from these structures. The tonsils often become affected as well as the larnyx, trachea and bronchi.

The enlargement of the lymphatics of the pharynx often interferes with the normal functions of the middle ear with which consequences we are all too familiar.

These inflamed cervical glands afford a suitable nidus for tubercular organisms which produce such disastrous results. To this condition of nasal obstruction the word adenoids has been applied. It has become too familiar an

expression and is deservedly regarded by patients with considerable dread. I may be too young both in years and experience to criticise, but personally I believe that surgeons have too often regarded the secondary infection of the so-called pharyngeal tonsil as the primary cause of the naso-pharyngeal obstruction, and have endeavored to cure the condition by the unskillful and heroic scraping of these parts. It is quite apparent that this operation is not alone sufficient to restore to the nose that mechanical factor upon which its growth and development depends. Such a procedure may occasionally be of service, but the operation alone will not relieve the infected mucous membrane. On the same principle we had as well attempt to cure a sore on the penis by removing a secondarily infected bubo.

The patients who are minus the vigor and strength and energy to get rid of this primary infection by expelling the accumulated mucus, and receiving air through into the nose, are much alike in many respects. Their vital powers are nil, there is a total absence of energy, they always assume attitudes of rest, and avoid those of activity. The quantity of air they change during respiration is very small and is produced mainly by the action of the diaphragm, the chest remaining in the position of rest.

If we should take the trouble to pass a tape around the chest during respiration we will find it varies very little if at all. As a result we get the fixed resting posture of the body often described as "dorsal excurvation." Finally as a natural result we get complete fixation to which the popular and unscientific terms lateral curvature, scoliosis, etc., have been applied.

As a result of this resting attitude of the chest we also get other deformities called flat foot and knock-knee. These patients are supplied with such small quantities of oxygen and are loaded with such foul pulmonary products, that they have little energy to expend in forcibly venti-

lating the naso-pharynx, but fall back on the more easy method of procuring it through the mouth, with results too familiar to all of us.

I have often wondered why it is that medical men devote so little attention to the manner in which people perform that most important function respiration, since it is by far the most important one for the welfare of the patient. By the means of this function alone are the tissues and organs supplied with oxygen, and in direct proportion as the oxygen supplied is good or bad, so are the functions of these tissues and organs performed in a satisfactory or unsatisfactory manner. The attention of most medical men has been fixed, and we have educated our patients and the general public to fix theirs upon the rapidity with which the products of digestion pass along the intestinal canal, and it is generally assumed that something has gone wrong if the bowels fail to act at least once a day. 'Tis strange I say that no attention whatever is paid to the manner and character of the respiration, yet it is of infinitely more importance to the welfare of the patient. In fact, constipation is too often the result of imperfect oxygenation. I have frequently seen patients who perform little or no thoracic respiration with the spine fixed in the position of extension by some steel brace or other, and others ordered laborious exercise to rapidly exhaust the small capital without adding to it appreciably.

I believe that the erroneous treatment results from a deficient knowledge of the mechanics of respiration, and of the important part which the spinal column should take in this process. Again, I may be too young to criticize our able physiologists, but I believe they have misled many of us by their attempts to illustrate the respiratory process by means of a mechanism in which the spinal column is represented as a rigid and immovable rod. This generally accepted theory is absolutely false, since the variations in the

spine are infinitely more visible than those of the chest walls. I would therefore suggest that the manner in which the tissues receive their oxygen receive as much attention as the rate at which the sewage products of the body pass along the intestinal canal.

I believe if this is done well, that adenoids, resting deformities and many other diseases, resulting either directly or indirectly from an imperfect supply of oxygen, will disappear.

'Tis not my intention to consider the subject of adenoids, further than to say that bloody operative procedures are, in my opinion, in most instances wholly unnecessary, and that a systematic ventilation of the lungs through the naso-pharynx furnishes us with a means not only of applying to the naso-pharynx that force by air being driven forcibly through it, but by oxygenating the blood more fully, removes more thoroughly its carbonic acid gas, the tissues of the body are better nourished and perform their functions in a normal manner. In my opinion and experience this is best accomplished by placing the child on its back three times a day for at least twenty minutes at a time and make it breathe in and out as deeply as possible through the nose, the mouth being kept closed. This, together with some antiseptic lotion to keep the infected membrane clean, is, in my judgment, the most rational treatment in many diseases of the naso-pharynx. Returning to my subject, cleft palate, you see that so long as the nasal cavities are in communication with the mouth the main factor upon which they depend for their development is held in abeyance, and therefore they cannot develop. As a consequence the sides of the alveolar arch become closer together, as do also the edges of the cleft, and the roof becomes more vertical. Most surgeons claim that in delaying the operation these changes occur and render the operation more simple; or to

put it plainly the less developed the nose, the easier is the closure of the fissure in the floor.

If the caliber of the nose bears an inverse proportion to the height of the palate, as the lower portion of the cavity is the portion through which air passes, 'tis plain that this space is encroached upon by any increase in the height of the palate. Knowing, therefore, the mechanics of the naso-pharynx, 'tis easy to see the advantage of separating these two cavities as early in life as possible, in order to restore to the nose that force upon which its development depends.

In order to remind you of the practice followed by most surgeons of to-day, I will quote from three of our standard authors, both at home and abroad. Mr. Treves says that in the infant the cleft is wisely deemed inoperable, and that the time of election is from four to six years of age. The author does not appear to adduce any argument to prove that it is unwise to operate on an infant, but as he is authority we must accept it.

Mr. Erichsen says, "The first question to be determined is the age at which the operation should be performed, as the success of the operation depends mainly upon the patient remaining quiet during the operation, upon his assisting the surgeon by keeping the mouth open, and that it is not expedient to interfere until the patient is old enough to understand the necessity of remaining quiet."

Mr. Bryant says, "That the operation may be undertaken at the age of five in a healthy child, and that he has performed it himself successfully as early as four." Are we to accept these statements as true, when in the past winter in Guy's Hospital I saw thirty-eight clefts closed, and not one of them older than six weeks, and not one failed to recover? No. I believe that the treatment of cleft palate, like other operations in surgery, has been a creed and a tradition, and that if we treat these patients as we should, that

no time should be lost in restoring to the nose its normal physiology.

(1) At what age should we operate?

(2) What is the best method to do it?

(3) How may complications be met?

If there is no special contraindication I believe the best time to operate is from the fourth to sixth week. Why? First, because the child stands the operation well. Second, the child experiences very little discomfort afterwards, and is soon able to take its food. Third, the small amount of hemorrhage is easily controlled.

The details of the operation vary in different cases, but in the majority of cases we should endeaver to raise a flap of mucous membrane together with the periosteum from one side and attach it securely beneath the raised margin of the opposite side, a modification of Mr. Davies's college operation.

Many children with cleft palates have hare-lip also; the latter is best left alone till the cleft in the palate has been closed, as it affords more room to reach the cleft.

DISCUSSION ON DR. CARSON'S PAPER.

Dr. J. H. Shorter, of Macon: I agree with Dr. Carson that cases of cleft palate should be operated upon at a very early age as the results are better. I do not believe in letting these cases go unoperated until they grow up.

As to the remarks of the doctor with reference to so-called adenoid vegetations or lymphoid tissue, I do not believe in letting these cases alone, and with the operation usually performed in these cases we may almost always promise good results. Barring, of course, some constitutional trouble, such as hemophilia, or something of that kind, I would operate early, as early as a few years. It is true that some of these hypertrophied tissues will diminish in size with age. It is rather unusual to find an adult per-

son with lymphoid tissue prominent in the vault of the pharynx. Nothing is to be gained by leaving this tissue and an operation is invariably beneficial. We have many cases of children on our books in poor health who do not gain in weight and increase in size very materially. But as soon as the pharyngeal or adenoid vegetations are removed, within a few months they gain so much that they are hardly to be recognized as the same individuals. As I have said, we have nothing to gain by leaving these cases alone, and everything to lose for the child.

Dr. J. M. Crawford, of Atlanta: I agree with the remarks made by Dr. Shorter in regard to adenoid vegetations. It very often occurs that we have ear trouble depending upon these vegetations, and I have noticed that in treating these cases for years, by removing the vegetations the ear trouble is entirely relieved. I take it, that it is good surgery to operate on these cases. It is one of the advanced steps we have made in medicine during the last ten years.

Dr. Cason (closing the discussion): I did not wish to be understood as saying that it was unwise to operate in any case for adenoids, but I did say that in my opinion it is unwise to operate on all cases who present the facial expressions so characteristic of past pharyngeal disease.

Some years ago it was quite the custom with most American surgeons (especially in New York), to operate on all cases presenting the symptoms of adenoid. In England a very small per cent. of these cases are treated this way. English surgeons have adopted a more rational treatment. They endeavor to remove the primary infection by treating the primary infected mucous membrane, instead of removing the secondarily infected lymphatics of the nose.

OTITIS MEDIA PURULENTA AND SEQUELÆ.

By J. H. SHORTER, M.D., Macon.

This paper presents some observations on a diseased condition, not at all an uncommon one, but the importance of which, especially the gravity of the occasional complications, is too often ignored or made light of. This is affection of the middle ear attended with exudation or suppuration. I do not propose an exhaustive essay on the subject (the larger part of a book would not more than suffice for the purpose), but as I stated above, only some brief remarks of, I trust, a practical nature.

No lack of attention has been paid this matter by otologists, particularly during recent years, but as remarked before, the subject, in too frequent cases, does not receive from the busy practitioner the attention its importance calls for. And it is to the family medical adviser that we first bring all our ailments and tales of distress.

Otitis media purulenta may be acute or chronic, the latter often a sequence of the first. The former, as is the case in most affections, yields the more promptly to treatment with altogether better prognosis, both as to cure of the suppurative process and restoration of function in the diseased ear; whilst at same time the risk of serious secondary complications is much less. The exciting cause of an otitis media acuta may be an influenza, an acute pharyngitis, improper use of the nasal douche, sea-bathing, diphtheria, etc. It is particularly liable to occur in course of the exanthemata, especially scarlatina, and sometimes is a complication of other fevers as pneumonia and typhoid. It

may be traumatic as from injury to the drumhead or injection of irritant liquids through the Eustachian tube, a mode of treatment for chronic middle ear catarrhs favored by some men of eminence, but which I may say, in parenthesis, I have quite abandoned, from having seen so many cases of violent middle ear reaction and even suppuration set up by it not alone in my personal practice but in that of other surgeons, some of them of noted skill and experience. In New York we had always an especially large number of acute middle ear inflammations during the season for surf-bathing. This I came to attribute not, as at first thought, to the impact of the sea wave on the side of the head or through the canal or the drum membrane itself, but to the spasm accompanying the sneezing, swallowing and gagging, caused by water entering the nostril, driving the liquid up the Eustachian tubes into the tympanum. Among traumatic causes may be mentioned picking the ear with a sharp instrument for removal of wax or a supposed foreign body. Not a few times I have known the drumhead to be lacerated by this foolish performance, and have a case on record where most of the membrane was removed and with it malleus and incus—done by a machinist who used a long awl in attempting to remove a supposed foreign body from the ear of a fellow workman.

Predisposing causes are important factors in otitis media, both acute and chronic, chief of these being obstruction in the nasal cavities or naso-pharynx, adenoid or lymphoid tissue in vault of pharynx, hypertrophied faucial or pharyngeal tonsil, etc.

By way of digression I may say that just here is where the family adviser is so often to blame for sin of omission in passing by, as trivial, things which are of great importance to the future well-being of the individual, especially if it be a child, as is often the case. It ought to be accepted as a maxim that any condition interfering with free

respiratory functions of the upper air passages is always a matter of great importance, and without any delay measures should be taken to correct the condition. Too often I have been told by a mother that she did not bring the child sooner because the family adviser, perhaps a most enlightened and otherwise competent physician, said that it would outgrow the nose and ear trouble.

An acute middle ear suppuration may, and too frequently does, became chronic, but need not of necessity do so. Properly managed or even without much treatment, it may get well, and sometimes with retention of good hearing. Furthermore, an acute aural catarrh which might have developed suppuration may, by vigorous treatment, be cut short and a cure effected without going on to a purulent or even profuse exudative stage. To effect this, local depletion by leeches, etc., especially at the beginning, is certainly of very great value and is, I think, not generally enough made use of. By this free use of leeches applied over the tragus, supplemented by active purging, an attack may be aborted sometimes. Where there is already exudation (indicated by bulging of the membrana tympani), a large, free paracentesis of the latter should always be made. Before making this incision, I cleanse and disinfect as well as possible the external auditory canal, which no doubt does much to prevent infection of the wound and the secretions in the drum in cases where the latter are not already purulent.

Often, in spite of antiphlogistic treatment, the otitis media becomes purulent and eventually chronic, and this is almost invariably the case when proper derivative treatment has not been used or efficient drainage established at start.

In chronic suppurative otitis media the symptoms may not so urgently call for prompt relief, but treatment to be effectual must be not the less radical and thorough. As

is the case in all abscess cavities the indications are for removal of offending causes and establishment of free drainage. In acute cases which have existed a number of days and in chronic ones there will be found perforation of the drum membrane, but often this is too small and will require enlarging not only for proper cleansing, but for inspection of and applications within the cavity if need be.

Treatment, in chronic cases particularly is often very tedious. First, make a correct diagnosis of the true condition of every part of the middle ear. This can sometimes not be done by reason of swelling and partial occlusion of the external auditory canal. All such obstruction is a serious matter and should be reduced as rapidly as possible, as it not alone interferes with inspection of the deep parts of the ear but hinders the exit of purulent secretion. Ascertain if relation of parts within the drum are normal and free, if signs of dead bone be present or polypi and granulation. When these latter are found they should be thoroughly removed and best by snare or ring knife, cauterizing the base afterwards. If after thorough removal and cautery of a bunch of granulation it springs up again, it is certain indication of the presence of dead bone.

Syringing done well and carefully is needed in almost all cases, cleanliness and free drainage being the basis of every proper treatment. In some early and appropriate cases it is advisable to syringe as often as once in two hours, using sterilized water with salt or with bichlorid one to five thousand.

In other cases the cleansing may be done three times daily. I am quite favorable, in many cases, to use of the intra-tympanic syringe. That of Dr. Graddy is probably one of the best, or Hartman's.

The probe is an indispensable instrument of diagnosis as it is in cases of suppurating cavities in other parts of the body. Its delicate use will often disclose a spot of bone

necrosis. All places with dead bone should be well and carefully scraped out. Sometimes considerable curetting may be needed.

In chronic cases with large perforation and red, thickened mucous membrane, applications of nitrate of silver are of great benefit, beginning with two per cent. solution and increasing in strength to fifty per cent. Small granulations when not curetted are best destroyed by applications of chromic acid.

Later on when the secretion has become scant, it is generally best to stop syringing and liquid medication. Here powders are useful, especially where employed in small quantities and the patient is kept under observation and the formation of lumps and masses prevented which might be obstructive to drainage.

But with what we may consider faithful attention many cases of chronic otorrhea are very stubborn, yielding little if any to routine treatment and most wearying to both patient and surgeon. In such cases I think it best to resort early to radical operative measures, removing the ossicles and if needed, curetting the upper cavity of the tympanum —the so-called attic.

There are many cases on my record book that did not show any tendency to cure or even decided progress until I had resorted to such operative procedures.

The focus of trouble in these obstinate cases may often be found in the attic, the diseased condition of which cavity keeps up the suppurative process and prevents healing. Especially is this the case where there is perforation in the membrana flaccida which may be said is pathognomonic of bone caries. The benefit derived from removal of the ossicula, notably of the malleus and incus, is more often, I think, not on account of these little bones being themselves necrosed, or otherwise offending bodies, but because their presence with a swollen condition of the mucous folds

closes up the aperture leading to the vault of the tympanum and prevents free communication with and egress from that cavity. To a like reason I attribute the great benefit of a radical mastoid operation in curing an old otorrhea, for in properly performing this, free communication is always made between the mastoid antrum and attic and everything laid open. More than once after having made such operation, not as a therapeutic measure in treatment of the purulent otitis, but for reason of threatening meningitis, I have been much gratified to see a prompt and permanent cure of a hitherto obstinate otorrhea.

In some chronic cases, usually neglected ones, where no systematic attempt at cleanliness has been carried out, masses of considerable size may be found composed of desquamated epithelium and other débris packed together. The importance of these tumors, "cholesteatoma, so-called," is both from being impediments to free intercommunication of the cavities of the middle ear and from fact that being constantly progressive they may grow to sufficient size to dilate the parts and by pressure cause absorption of the bony walls, even making opening into the cranial cavity itself. The indication for treatment is removal of the tumor masses. In certain cases when rather loose this can be done by careful syringing, but often curetting is required.

In all cases of purulent otitis the membrana tympani should be inspected in all parts. There may be more than one perforation, or sometimes so little discharge that the patient complains only of an occasional small lump or concretion picked out of the ear and denies having ever had a running. Examination will show a scale or small collection of inspissated secretion, and on removing this a minute perforation is uncovered, giving exit to so small a quantity of pus as never to make a discharge noticeable to

the patient. Such cases are, I think, especially prone to set up mastoid or intra-cranial trouble, and hence are of peculiar importance and danger, in that the very absence of marked symptoms of suppuration has lulled the patient and surgeon into condition of false security; whereas with free discharge of pus from the tympanum, mastoid complication is quite uncommon.

The importance of purulent otitis media is, besides the extreme annoyance of the mattery discharge, twofold in that it involves not alone risk of great injury to the sense of hearing, but of life itself, chiefly by reason of the close proximity of the cavities involved to the brain and its membranes.

Suppurative involvement of neighboring parts is usually upwards and backwards, the participation of the labyrinth being exceedingly rare even in old cases where for years the round and oval windows have been bathed in pus. I have, however, seen a case with complete exfoliation or sequestrum of the semi-circular canals and cochlea, and others have been reported.

The chief dangerous complication attending suppurative inflammation of the middle ear is mastoiditis. Probably in almost all cases there is some hyperemia of the membrane lining the mastoid antrum; we refer particularly, however, to suppurative inflammation of the mastoid.

In acute otitis media purulenta the mastoid involvement is generally acute with sudden, sharp onset and often considerable increase of temperature. Much can be done in these cases by antiphlogistic measures to sometimes cut short the inflammatory process, the constant application of cold over the mastoid by the ice coil of Leiter being probably the most useful. In children the onset may be by convulsions, violent headache and other symptoms of meningitis; in such cases an ice cap to head is most beneficial and may relieve or cut short these alarming conditions. In

these cases there has been, probably, a meningeal hyperemia, for I cannot believe in the probability of a cure of diffuse septic meningitis once begun, by any treatment.

These attempts at abortive treatment should not however be persisted in too long at risk of loss of vitally valuable time and passing by of opportunities for successful surgical interference. If after thirty-six or forty-eight hours of ice applications, etc., all symptoms referable to the mastoid are not relieved, further delay is not justifiable, but operation should be performed at once. In fact for ten years past, with each increase of experience, I have grown less willing to wait on palliative or temporizing measures.

The usual signs of mastoid inflammation are tumefaction of soft parts covering the process (chiefly of value in children), pain and tenderness on pressure. For eliciting this last symptom, however, care must be taken to press directly on the mastoid without disturbing the auricle or cartilaginous meatus, for in such cases these latter are often very sensitive to any movement. A bulging of the upper and posterior wall of the meatus is pathognomonic of mastoiditis. In certain old cases of otitis media purulenta in which the bony cortex of the mastoid process has by inflammation or degeneration become compact and of ivory hardness, abscess may occur in the antrum (mastoid) and run its course with few if any objective symptoms, little increase of temperature and even without any sensitiveness to pressure over the parts. These cases are the more serious and the more frequent cause of death for the reason that the usual symptoms are masked and the suppurative process slow and insidious in its course, the earliest marked symptoms being those of intra-cranial mischief. The importance of suppuration within the mastoid lies in the great risk it involves of communicating sepsis to the

cranial cavity through perforation into the middle cerebral fossa, thereby causing meningitis and brain abscess. Such disastrous result may occur, though fortunately in rare instances, as a consequence of necrosis and perforation of the tympanic roof where the bone is unduly thin and without any apparent implication of the mastoid. These cases are of extreme gravity for the reason that all symptoms pointing to mastoid trouble being absent, the condition is not recognized in time and has gotten beyond hope of relief even by radical surgery, before detection. This teaches us not to confine investigation entirely to the condition of the apophysis, but in cases of purulent otitis media to pay the strictest attention to any or every symptom pointing to intra-cranial complication where the discharge from the ear has become scanty and seemingly impeded, while subjective feelings, fullness, slight pain or sensitiveness still continue. For it may be again stated and axiomatically that so long as discharge from the ear is profuse and unrestricted the danger of mastoid involvement or of other more serious complications is very slight. Notice should be taken of any signs of muscular impairment, of the state of the temperature and of any complaint of vertigo, drowsiness, headache, photophobia or other annoying subjective symptoms. I have for some time made examination by ophthalmoscope a matter of routine, to detect any beginning optic nerve changes, for in some cases a papillitis has been found as a fairly early symptom.

There may occur also, probably by infection through the mastoid and tympanic veins, a septic phlebitis causing thrombosis, more or less extensive, of the lateral sinus. A diagnosis of this condition is often very difficult to make, as general symptoms are usually so obscure and so little pronounced until the trouble is far advanced. Some cases of thrombosis have gone on to resolution and made spontaneous recovery, but the condition may be properly re-

garded as one of extreme gravity with every likelihood of a fatal termination if not early relieved by surgical intervention. The danger is the same as from a large focus of infection in other parts of the body, that is of metastasis and formation of secondary abscesses in other organs, especially in the lungs and brain. Such symptoms as exist are those of general pyemia, and of this the temperature chart is usually typical and often the only diagnostic guide until later when progressive emaciation and general failure of health become noticeable. The temperature should be taken very frequently, if possible every few hours, remembering that in pyemia the changes are very sudden and decided, not unfrequently rising rapidly to 105 degrees or 106 degrees and again dropping to normal within a couple of hours. When the jugular vein is also involved it may be felt like a hard cord along the neck and thus aid in making a diagnosis.

Finally as to treatment of above described sequelæ of purulent otitis media. When there is indication even though not very prominent of mastoid involvement, and, as said above, all symptoms of inflammation in acute cases do not yield promptly to depletive treatment, operation should be done at once and without any delay. I have operated twice at night by lamplight rather than take the risk of waiting until next day. Make the operation very thorough. Wilde's incision is a delusion, and a trephining or drilling is usually insufficient and misleading. With chisel and mallet open up freely all cavities from tip of the process to the antrum and best with removal of the entire anterior cortex. Much better cut away too much than too little. The chief complication which may arise in course of the operation is a perforation of the lateral sinus, but this mishap, although unfortunate and carefully to be guarded against, we learn from experience is not fraught with the fatal or even serious consequences formerly attri-

buted to it. The hemorrhage following the gush of blood may be alarming, but can usually be quickly stopped by packing with iodoform gauze. The mastoid operation ought to be done under thorough asepsis, not on account of the contents of the antrum, which is already purulent, but for reason that we may at any time make an accidental opening into the cranial cavity. When diagnosis has been made of probable involvement of the intra-cranium the suggestion of treatment is only one, that is to operate. Operative procedures within the skull are formidable both to patient and surgeon and the mortality following them may be large; but it is to be remembered that we have desperate conditions to deal with, and that without surgical interference death is in almost all cases inevitable, so nothing is gained by timidity, and to delay is trifing with the life of the patient. Often diagnosis is very difficult owing to paucity of symptoms, but even with strong suspicion of intra-cranial trouble, opening the skull as an exploratory operation is fully justifiable. For this purpose a large skin flap should be made, as it may be necessary to trephine in more than one place according as we may wish to examine the condition of the parts over the tympanic roof, the presence of thrombus in the sinus or the possibility of a cerebral abscess. In seeking for the latter a fairly large hypodermic needle thoroughly sterile may be plunged into the brain without any apparent injurious effects. In fact a large part of the brain cavity can be explored. If found the abscess cavity should be opened into and evacuated and drainage by gauze established. Many cases of recovery have been reported.

In thrombosis of the sinus the latter should be laid freely open and the mass curetted out until the presence of free hemorrhage shows that its limits have been reached. When the internal jugular vein is implicated it may be tied off and resected out between the ligatures. Epidural

abscess needs only to be freely opened, syringed out and given free drainage. It is generally encapsulated.

Septic meningitis is the most to be dreaded of all complications. The outcome is almost always fatal regardless of treatment.

The prognosis in cerebral abscess is much better even, especially if found and evacuated. When seen and operated on early the prognosis in sinus thrombosis is still more favorable. In extradural abscess prognosis is best of all, and recovery after proper evacuation ought to be almost the rule.

Thus it is seen that much depends on promptness of operation. Without this only a fatal termination can be expected whatsoever the nature of the intra-cranial sequelæ of a purulent middle ear disease. So let operation follow quickly on diagnosis.

DISCUSSION ON DR. SHORTER'S PAPER.

Dr. J. M. Crawford of Atlanta: I am glad to see that the mode of treatment of chronic suppurative aural catarrh has been changed in the last few years. The old treatment was to give patients a douche or a wash, and tell them to syringe the ear and put in drops. The result was that the discharge continued and was more serious than one would think. Patients with chronic suppurative aural catarrh are unable to get life insurance if the company knows it. It is a serious condition and any patient is liable to have a meningitis from it or mastoiditis, which is one form of meningitis, and die from that cause.

The treatment consists in extirpation of the necrosed bones and the remaining drum membrane under ether in preference to cocain. I find that cocain anesthesia does not deaden the sensibilities of the patient sufficiently, and so I put the patient under the influence of ether, and by means of the head mirror throw the light in the ear and at-

tack the drum membrane together with the necrosed bone By pursuing this treatment, at the end of a few weeks the patient is well, when otherwise it would take months to make any perceptible beneficial effect whatever by treatment. It is true that some of the cases have a tubercular diathesis, and they will not get well under this treatment. There will be more or less discharge afterwards, but in other instances this treatment will be successful.

Dr. J. G. Hopkins of Thomasville: Dr. Crawford is eminently correct in his statement regarding the tubercular diathesis, and a patient with suppurative disease of the middle ear with such a diathesis will not get well. I have never seen one that did get well after the operation he has described was performed.

TONSILLOTOMY—WHEN AND HOW TO MAKE IT.

By J. M. CRAWFORD, M.D., Atlanta.

I am aware, gentlemen, that the subject of tonsillotomy is an old one, but indeed almost all important subjects are o'd, and yet we often gain much and help our fellow laborers vastly by speaking of things of every-day life. It is not attempted here to state the origin or trace the history of the operation. I shall endeavor to throw some light on the question, when and how should tonsillotomy be made?

Tonsillotomy should be resorted to when the tonsils extend much beyond the pillars of the fauces, not waiting until they touch each other, especially where aural catarrh exists. It is indicated even when the tonsil is slightly hypertrophied, if the lacunæ are inclined to inflame from collections of caseous secretions. Shaving the tonsil destroys these lacunæ, thereby preventing this frequent and painful inflammation. No one, even the most timid operator would hesitate to make the operation when the tonsils are so large as to reach the uvula, thereby making it laborious to breathe, especially when asleep, and these diseased conditions often prevent respiration. I take the position that one could breathe just sufficiently often as to grow lean, not getting enough oxygen in the lungs on which to thrive. On the other hand he can breathe sufficiently often and deep so that he will be able to grow fat, the diet in both cases being the same, and in such cases of impaired breathing we find the advisability of doing tonsillotomy.

Here we have a boy or girl who, besides sleeping with the

mouth open, breathes imperfectly—only about twelve times a moment. Such a patient may not be expected to grow, give him to eat what you may. Even the vulgar notion which leads to fear of losing the power of posterity is sometimes in the way of the physician when he suggests the operation. Of course this should not be thought of for a moment by the patient or friends, as there is no foundation for this false idea. Neither should the fear of losing one's voice be an obstacle, as there is no danger to be feared on this score. The main difficulty to be met, and this, for the most part, in patients above fifteen years of age (taking it for granted that the operation is properly made), is hemorrhage.

Below the age of fifteen the tonsil is usually soft, and when cut, as with the tonsillotome, the cut edges are more or less mashed or pressed together, thereby stopping the hemorrhage. In older persons, however, the tonsil is more fibrous. The walls of the cut vessel are pulled apart, as it were, by the firmness of the tonsil itself. I would not hesitate, however, to make the operation, when it was needed, even in the oldest. Fortunately, after a certain age the tonsils atrophy and require to be removed rarely. Fewer cases of hemorrhage occur when the operation is made with the tonsillotome, instead of the vulsellum forceps and bistoury. When using the bistoury and forceps one is apt to pull the tonsil with his forceps too much. In such a case he knows not where he is cutting. On completing the operation and looking into the mouth of the patient he sees a sulcus, where a portion of the tonsil should have been left. A sulcus, besides endangering the life of a patient by hemorrhage (so much of the tonsil being removed), is a source of constant annoyance in that it is a lodging place for food, etc. The tonsillotome makes a clean, straight cut on a level with the pillars of the fauces. The bistoury by its to-and-fro motion leaves the cut surface jagged.

There is much less pain in operating with the tonsillotome. I would advise you never to use the forceps and bistoury. I prefer McKensie's tonsillotome or some of its modifications to all others. It is more simple, more easily managed and less cumbersome. I much prefer this instrument to the various barbed instruments now on the market. There need be no fear of the tonsil falling into the larynx, as it nearly always adheres to the instrument. Where it does not adhere to the instrument, it falls in the mouth and is expelled. By applying a little cocain (a six per cent. solution is quite sufficient) to the tonsils and fauces you allay the sensibility of the throat, which is a great aid in the operation. Be sure that your instrument is over the tonsil just where you wish the incision to be made, then push the blade to its destination.

You will find your patient allows you to remove the first one with a great deal more readiness than the last one. To remove the second one comes the "tug of war." By a little persuasion, however, you can overcome this. Keep your patient quiet for thirty minutes to see if excessive hemorrhage is going to take place. Should this occur you have a safe hemostatic in the cautery. Now should the operation have been made with the bistoury and the deep sulcus of which I have already spoken existed, you would not be able to see the bleeding point, and hence would be debarred from this effective means of arresting the hemorrhage. In this case pressure upon the cut surface with a pledget of cotton will, if diligently used, cause the hemorrhage to cease. This is a very trying procedure, both on the patient and the doctor. I have used this method and know by experience how trying it is. During my stay with Dr. Calhoun, as assistant, I can recall five or six cases of frightful hemorrhage from tonsillotomy made by him with the knife and forceps. In each case the hemorrhage was stopped by my putting a wet sponge or pledget of cot-

ton on the cut surface and applying pressure. In each of these cases the sulcus existed, making it impssible for me to see the bleeding artery and forcing me to resort to the only safe method for such cases, to wit: pressure. You will pardon me for my modesty, which can be explained, for claiming at this late date the originality of this plan of pressure by means of a pledget of wet cotton or wet sponge held firmly to the cut surface by the two first fingers. The first time I used this method was in the fall of 1889. The patient, a boy of about sixteen, having been operated upon by Dr. Calhoun, bled more or less profusely while we were at dinner. On our arrival we found him very weak indeed, from the great loss of blood. Dr. Calhoun asked me to stop the hemorrhage. He was still bleeding. So, to meet the emergency the case demanded, I quickly applied a wet sponge in order that I might have a moment's time for reflection. This succeeded so thoroughly in stopping the hemorrhage that I ceased my desire for another method. I do not say I was the first one to use pressure for this trouble, but I do say that the idea was original with *me* in employing it. So you see we do sometimes meet with difficulties in making this operation. We have, however, at our command, as I have already stated, two means for arresting the hemorrhage: The cautery, when the bleeding point can be seen; in other instances, apply pressure.

DISCUSSION ON DR. CRAWFORD'S PAPER.

Dr. J. G. Hopkins of Thomasville: I make it a rule always to use cocain in such operations and use it freely. I use an eight per cent. solution, and I have never had any trouble in cutting the second tonsil, as Dr. Crawford has suggested. The first is removed almost without pain if you have given the cocain sufficient time to act and have applied it sufficiently strong to accomplish the purpose of relieving pain. The cautery is a most excellent thing to stop

the hemorrhage, but I have never had any trouble in stopping hemorrhage by the application of a pledget of cotton saturated with a solution of cocain. It astringes the parts and thus stops hemorrhage. I operate when there is any hypertrophy of the tonsil if I can obtain the consent of the patient. I know whenever I can *see* a tonsil that I have a diseased tonsil. Unless it is in a state of disease it never reaches sufficiently beyond the fauces to be distinctly seen, and when there is sufficient distention of the growth for one to remove it I operate without hesitation.

Dr. Crawford is correct in that there is a time at which chronically enlarged tonsils take on atrophy. Just what that time is I do not positively know, but according to my experience, it is about the beginning of adolescence.

Dr. J. W. Duncan, of Atlanta: Dr. Crawford in his paper speaks of when to operate. I think we are all called to cases of tonsillitis where the tonsils are abnormally enlarged, but we see them during an acute attack of tonsillitis, when the tonsils are large enough to require operative interference, but just at that stage of acute inflammation, I believe it would be bad practice to operate. I think it would be better to wait a few days until the acute inflammation had subsided, then operate. I would like to hear from Dr. Crawford on that point in closing the discussion.

Dr. Hopkins: My remarks had reference entirely to chronic enlargements of the tonsils and not to cases of acute tonsillitis.

Dr. J. T. Ross, of Macon: I would like to ask Dr. Crawford at what age the tonsils atrophy?

Dr. Crawford (closing the discussion): They atrophy at all ages. They begin to atrophy as we grow older. My tonsils are smaller now than they were a few years ago. There is no doubt but what the tonsils atrophy. If you take the pains to examine the tonsils of children at the age of five you will find they are large, but if you watch and

examine them again at the age of fifteen you will find they are much smaller, and at the ages of thirty and forty the tonsil is small indeed. It is the rarest thing for a person who is over forty years of age to have tonsillitis. Persons have it before that period.

Of course, I could have made my paper much longer than I did, and could have elaborated the point of when and how to make tonsillotomy. I never think of doing a tonsillotomy in cases of acute tonsillitis. I would wait until the inflammation had subsided and then operate.

The matter of controlling hemorrhage of the tonsil is more interesting to me than the form of the operation. I have seen six cases and in each one of them the patient was apparently going to die. One of them began to show signs of hemorrhage a few moments after the operation was made. In each case the hemorrhage was arrested by my putting a wet sponge or pledget of cotton on the cut surface and applying pressure.

ETHYL CHLORIDE AS A LOCAL ANÆSTHETIC.

By WM. Z. HOLLIDAY, M.D., Augusta, Ga.

Considered from the standpoint of minor surgery all physicians are also surgeons. Granting this, we must admit that a consideration of local anæsthesia at this time will not be out of place. Until the introduction of cocain a few years ago, there was no very satisfactory agent in use for this purpose. Cocain proved a great blessing, but the range of its usefulness is more or less restricted by its toxic properties, and the necessity of applying it subcutaneously, when used on other than mucous surfaces. It is also a fact that the introduction of the hypodermic needle, which carries the cocain, is often quite as objectionable as the introduction of the point of a bistoury. Most of the other drugs used for this purpose are open to the same objections as cocain. I consider, therefore, that the introduction of a remedy capable of overcoming these objections is a distinct advance in therapeutics. In ethyl chloride we have an agent capable of overcoming most, if not all, of the objections to other drugs we have been using for the production of local anæsthesia. Ethyl chloride is a light, transparent liquid, having a specific gravity of .902, and is said to boil at 50° F. As prepared for market it is put up in hermetically sealed glass tubes, or more recently, and certainly more conveniently, in tubes closed at the point with a spring cap, from which the fluid is obtained by spraying on to the point to be anæsthetized. It is readily vaporized by the heat of the hand. As it is thus vaporized it is projected from the container, in the form of a fine spray, which when

brought in contact with the surface of the body produces such a rapid reduction of temperature at that point that there is an actual production of ice on the surface. This rapid cooling is at first accompanied by a sense of burning, which, however, soon passes away and a thin coating of ice on the spot is evidence of the anæsthesia. If there is much surface to be anæsthetized the process can be hastened by fanning the spot with a palm leaf or other fan while the fluid is being sprayed on. When the surface is covered with the thin coat of ice you can proceed to operate, and if the operation is a superficial one, in a perfectly painless manner. For boils, abscesses and a great many wounds of accidental origin, this surface application is sufficient. If, however, there is a deeper cut to be made it will require an additional application in the bottom of the incision when a depth of about a quarter of an inch has been reached. This can be repeated as many times as is necessary with only slight inconvenience. For minor surgical operations your patient will object less to this procedure than to being punctured with an hypodermic needle, in an inflamed tissue, where the pain and tension is already as much punishment as the flesh is willing to endure. The anæsthesia produced by this drug is transient, passing away in from half a minute to two minutes after the spray has been discontinued. In all my experience no unpleasant symptoms have followed its use. I have great confidence in the possibilities of ethyl chloride, and give it as my opinion, that under its influence, many major operations, especially in conditions of shock and collapse, will be done and with a lowered rate of mortality. This is not a new drug, and I do not bring it before you as such, but rather with the hope of developing the advantages of a very valuable remedy, the virtues of which have been long overlooked. I have found it so far superior to all other agents of its class that I have, for some time, used it almost exclusively. Finally,

I will give you a report of a few cases from my note-book, then leave you to form your own conclusions.

Case 1.—F. A., white, male, aged about fifty, carbuncle on nape of neck requiring incision. Used one of the small, hermetically sealed tubes, the quantity being small and a considerable portion of that was wasted by not understanding how to use it. An incision two inches long and half an inch deep was made, the patient experiencing considerable discomfort, but no such pain as in the absence of an anæsthetic. A week later it was necessary to make a second incision, which was done under the influence of the same supply and with much more satisfactory result.

Case 2.—Mulatto, man, aged forty, employed to work in a slaughter pen. Presented himself at my office with an incised wound three inches long at the base of his thumb, which was made by the teeth of an angry hog. This wound was cleaned, sutured and dressed without any pain to the patient.

Case 3.—White, male, aged twenty-six, chancroid and phymosis with long and enormously swollen prepuce, patient in bed with temperature 105, sepsis from discharges retained under prepuce. Anæsthesia was produced on a line along the top of the prepuce, then with a pair of scissors this was laid open back to the corona glandis. Owing to the very great suppuration of the parts and the bad condition of the patient, the operation was discontinued; the parts being thoroughly drained, were cleansed and an antiseptic dressing was applied. The symptoms of sepsis rapidly disappeared and there was soon a marked improvement in the local condition. In five days the operation of circumcision was completed under the influence of the ethyl chloride spray and in a perfectly painless manner. It is only fair to say that in this case two tubes were used, the spray being applied on one side by myself, on the other by my assistant. This was done because one would hardly

produce an impression lasting long enough to go all around and continue until the operation was complete. In this case the patient made no complaint and assured me at the conclusion that he had suffered no pain at all.

Case 4.—Boiler-maker, white, aged thirty-eight. Finger amputated by drill. Stump was reamputated, sutured and dressed, the patient sitting in my office chair and felt only the slightest sense of pain.

Case 5.—J. P., white, aged forty-two, has had an attack of chronic malarial fever lasting him several months. Has also hemorrhoids. These are external and present the form of an enormous sessile mass extending entirely around the anus. Operation done with clamp and cautery and without pain. This operation was done five months ago and the patient recently told me in my office that he did not understand how I could have cut him so much without giving him pain, thus showing that the attempt to keep the cautery out of his sight as well as the local anæsthetic had been successful. He is to this day entirely ignorant of the fact that a part of his anal tissues have been removed by the hot instrument.

Case 6.—White man, aged fifty-four. Multiple abscesses along the side of tibia. These were cut on more than one occasion; some of them were deep and required the second application at the bottom of the first incision before the pus was reached. In this case the patient felt slight pain.

Case 7.—T. J., commercial traveler, hydrocele of the cord. Operation after use of ethyl chloride spray. His own words were "I did not feel the slightest pain."

DISCUSSION ON DR. HOLLIDAY'S PAPER.

Dr. R. M. Harbin of Rome: I have been very much interested in the subject of local anæthesia, as it is a ques-

tion we have to deal with daily, and it is one of great practical importance to the general practitioner. I fully agree with Dr. Holliday as to the efficacy of ethyl chloride. I have been using it for about two years, and it has been very satisfactory. In selected cases it is an ideal local anæsthetic, and while the doctor was reading his paper a remark occurred to me that I heard Dr. Wyeth make in connection with local anæsthesia. He said that in injecting cocain we should always make it a point to inject it between the layers of the skin, because it is an anatomical fact that the sensitive nerves are near the surface, and this gives us a good explanation of the efficacy of ethyl chloride. Unfortunately we cannot use it in some cases where we would like to. Take felons, carbuncles, and things of that kind, it is almost an ideal local anæsthetic. I have never had any bad results following its use.

Dr. Hopkins: I would like to ask Dr. Harbin whether there is any danger in handling the tubes.

Dr. Harbin: No, sir.

Dr. A. A. Davidson of Augusta: My question has been anticipated by that of Dr. Hopkins. I would like to ask, however, if there has ever resulted in the experience of Dr. Holliday or Dr. Harbin, any untoward effects from the use of ethyl chloride.

Dr. Graham of Savannah: I have used ethyl chloride as a local anæsthetic, and I was very much interested in what Dr. Holliday has said. In furtherance of the remarks that have been made I will say that I have used the infiltration method of Professor Schleich. The needle is introduced between the layers of skin, and the skin is thoroughly anæsthetized by the infiltration method, which deadens the nerves so completely that pain cannot be felt. The infiltration method of Schleich requires a small amount of cocain. The solution is composed of muriate of morphine,

cocain and common salt, and kept sterile by formaldehyde or carbolic acid. After the first introduction of the needle, when a small area of the skin is infiltrated, you can introduce the needle into the next edge of the infiltrated area, and continue until you anæsthetize a large area. Practically, the ethyl chloride deadens the nerves for the first introduction of the needle. I have performed satisfactory operations by the combined method of anæsthesia, namely, ethyl chloride and the infiltration method of Schleich.

Dr. Holliday (closing the discussion): I am very much obliged to Dr. Graham for his suggestion. It seems to me quite appropriate that the combination he suggests should be used in extremities where we can easily get at the part to continue the cocain, or the infiltration method, to which he has referred. It seems an ideal combination to employ the two together, but on the body, or at any place where you cannot easily confine the cocain, particularly if you are using that alone, I consider it risky to employ enough unless you can again wash it away, when your operation is completed. I believe we can obtain the same satisfactory results by the use of ethyl chloride. However, I appreciate the suggestion, and I shall endeavor to utilize it in the future.

As to the inflammability and the danger of handling this substance, I must say, I have only *heard* of it. I began the use of it *in extenso*, I might say, during the summer of last year. I found that my local druggists did not keep it in stock. One or two druggists said that they were afraid to have it in their stores, fearing that explosions might occur. I forthwith ordered it in lots of a dozen from a St. Louis house, and this was gotten during midsummer. Since that I have had it constantly in that portion of my office exposed to the sun from ten o'clock until almost sun-down, and it has not exploded, nor has it given me any trouble, or

suspicion of trouble except in one particular. I spoke to you about operating on hemorrhoids with clamp and cautery. I used it in two cases of that kind. In the first case there was no inflammability or evidence of combustion at all. In the second case, in which I had to remove only a small hemorrhoidal tumor, once or twice while the cautery was being applied the substance was vaporized, and there was a little combustion of the vapor on the surface, but it produced only a very small blaze which was easily extinguished by the slightest puff of wind from my lips. While this occurred two or three times, it was not of any concern to me, in that it did not disturb the operation or result, nor did the patient know that such an accident had occurred. From the experience I have had with it I consider that it is, comparatively speaking at least, a very safe agent.

REPORT OF A CASE OF OSSIFIC AND CALCIFIED OVARIAN FIBROMA WITH SPECIMEN.

By J. T. ROSS, M.D., Macon, Ga.

Mrs. B., white, aged forty-nine, whose case I wish to report and from whom I obtained the specimen I present for your examination, was one of a family of ten children—seven sisters and three brothers—all of whom lived to adult life. Each of her sisters bore from one to six children and neither of them are known to have had any uterine or ovarian trouble; three who survive her are thirty-eight, forty-eight and sixty years of age, and healthy. Her mother died at seventy of pneumonia.

At twenty-three she had measles, after which she was never quite so stout, but was always considered healthy. Her menses lasted four or five days and appeared at regular intervals of four weeks. Her bowels were always constipated. She married after she had reached the age of thirty-three, and two or three years later she began to have slight, dull, aching pains in her abdomen and back; a few weeks later she "felt a large lump," hard and very slightly tender, in the lower part of her abdomen, and, as she remembers, slightly more on the left side. A feeling of weight in her abdomen was noticeable thereafter, but was accompanied with almost no pain. Occasionally from this time on she had so-called "bilious attacks," lasting one to five days, during which she suffered greatly with headache, backache and nausea. There has never been any enlargement of the abdomen nor has she ever had reason to suspect she was ever pregnant.

My first visit to her was made February 21st, 1890, at which time she was suffering with headache, backache, vomiting, constipation, some fever, and her liver was torpid and slightly enlarged. Anodynes and a mercurial followed with quinine gave relief. At a subsequent visit "bimanual examination" was made. A hard, nodular, slightly movable "tumor," occupying almost the entire pelvic cavity, extending three or four inches above the pubic bone and slightly more to the right side, could readily be felt. Anterior to the tumor, and slightly to the left of the median line, the uterus could, with difficulty, be outlined. Dr. K. P. Moore, who had had much more experience than I, and with whom I was then associated as copartner, kindly consented to accompany me on my next visit. Together we made a thorough examination and our diagnosis was "either a pedunculated submucous fibroid of the uterus or a fibroid ovary," with the expressed belief that the latter was more probably correct. Our advice was not to operate until more inconvenience was caused.

Between February, 1890, and February, 1896, I was occasionally called to see Mrs. B., and each time I found her suffering about as indicated in report of my first visit. In 1894 she had the most severe attack from which she ever suffered after becoming my patient; it was harder to control pain, nausea and to cause free purgation—this last having been accomplished by several high enemata given after a mercurial and several doses of croton oil which was given in equal parts of castor oil and syrup of rhubarb.

In the fall of 1895 she began to experience more inconvenience. She suffered more with her back, the "tumor" seemed to her more movable, and she "felt as if it would come out" when she was walking or standing. In the latter part of January, 1896, she had her last so-called "bilious attack," from which she was somewhat improved when I

was called away from the city, and another physician was called to attend her. He became interested in her "tumor" and called in to examine it a gynecological specialist who confirmed his diagnosis of "extra-uterine pregnancy of years, standing, in which the fetus, with the exception of its head, had been almost wholly absorbed—the head presenting low down against the anterior vaginal wall." A simple operation of cutting through the vaginal wall and delivering the head, etc.—which could be easily pulled out —was advised. But for the opposition of the husband, who said nothing should be done until I had seen her and expressed my opinion, this would have been done as nearly instanter as possible.

Accompanied by Dr. K. P. Moore and the physician who was first called during my absence, I visited the patient the day after I returned to the city. Both Dr. Moore and I made a careful examination. There was no ascites, but more tenderness upon pressure. We agreed that the "tumor" was lower down, harder and slightly more movable than when we examined it in 1890, and each of us believed it to have undergone either osseous or calcareous degeneration. We freely admitted that the touch would easily lead any one to think his finger in contact with a fetal head, but each of us adhered strongly to correctness of diagnosis made six years before. We believed the inconvenience, which really amounted to pain, caused by the presence of the "tumor," would justify operative interference, and gave it as our opinion that the only way it could be removed would be through an abdominal incision.

On the day following this consultation I consented, because I felt patient was rightly mine, to operate, and February 11th, 1898, was decided upon as the time.

The preliminary preparation of the patient, instruments, etc., was that usually observed before doing an ovariotomy.

Under thorough aseptic and antiseptic precautions the ab-

domen was opened and the right ovary—for such it proved to be—was removed with almost no loss of blood. It is the specimen you have for observation. As its surface would indicate there were no adhesions. It was tied off about as in ordinary ovariotomy, the slight mobility found to be due to its being wedged as it were in the bony pelvis and it was delivered with difficulty by means of heavy tenaculum forceps to aid in lifting it to where fingers could be gotten under it. The womb and left ovary were about normal and were left undisturbed. The peritoneum was stitched together with catgut, the abdominal wound closed with silk and the patient put to bed seemingly in good condition after being under ether about an hour and fifteen minutes. She died about 11:45 p. m., about eleven hours after the operation, without having regained consciousness.

Dr. K. P. Moore acted as first assistant; his son, Dr. J. M. Moore, as second assistant, and Dr. G. P. Gostin gave the ether. My father, Dr. B. L. Ross, Dr. W. R. Winchester and two lady friends of the patient witnessed the operation.

The specimen, as you doubtless notice, is shaped wonderfully much like a fetal head. On one side a portion of the broad ligament, the fallopian tube and ovary are seen; almost if not all the fibroid enlargement is encrusted by an osseous deposit about one-sixteenth of an inch in thickness, which was more apparent when first seen. The interior of the "tumor" was more firm when first sawed open and it is studded with what seem to be calcareous deposits. Observe closely, and I think you can see the striæ running down into the tumor from that portion of the ovary which furnished the growth.

Authorities tell us that only three to five per cent. of all tumors of the ovary are solid, that fibroid of ovary is very rare. The condition presented you in this one is, I

think, still more rare; in fact, I do not remember to have seen a record of an ovary which had undergone both osseous and calcareous degeneration.

If my patient had lived—as she should have done, for my sake—I might have felt more pride in reporting this case and exhibiting this specimen, but the rarity of such a condition and the hope that you would be interested—at least in the specimen, gentlemen—are my excuses for having thus trespassed upon your time.

DISCUSSION ON DR. ROSS'S PAPER.

Dr. George H. Noble of Atlanta: I think the most interesting feature of the specimen exhibited by Dr. Ross is its probable origin. We cannot say without the use of the microscope whether it is true or not, but it strikes me that this tumor developed from the paroophoron, which, if true, is rather rare, and I regret that the doctor did not have a section made of it, as it would add very much to its interest. It is a fibro-calcareous of the ovary. The outer table of the tumor is brittle and does not give the characteristics of true bone. Aside from this almost all of these tumors are found to be calcareous and not bone. The doctor referred to the point that the tumor resembled a fetal head. I have observed the same thing in quite a number of cases of calcareous tumors of the uterus. I think that is due to the tumor being wedged down into Douglas's cul-de-sac, and assuming, more or less, the shape of that pouch. I hope Dr. Ross will have sections made of this tumor, and at some future meeting report to us the origin and character of the tumor.

Dr. K. P. Moore of Macon: Dr. Ross made some mistakes in reading the paper. One was that a diagnosis was made of submucous fibroid tumor. It should have been

subperitoneal fibroid tumor. The date of the operation should have been 1896.

Dr. Ross (closing the discussion): I agree with Dr. Noble, and I was glad to hear what he had to say with reference to the origin of this tumor. I knew it was obscure, but I felt that other members of the Association would know more about it than myself. I did not think of having a section of it made at the time, but shall be glad to have it done to settle the question of the origin and character of the tumor. When the specimen was first gotten the impression imparted to the sound was that like hitting an old skull, denuded of flesh and periosteum, you might say, with the exception that it was solid. I do not claim to be a pathologist, but I have simply given ycu my opinion as to what I think it is. It was a mistake on my part to say that it was a submucous fibroid tumor.

MONSTROSITY—THORACOPAGUS.

By K. P. MOORE, M.D, Macon, Ga.

Was called June 5th, 1897, by Dr. H. A. Brown to see Mary Ellen Parker, colored, aged thirty-one, in labor with her eighth or ninth confinement. Previous history good. Has had one pair twins previously, both now living, and fine children. Nothing unusual in this term of gestation, except tremendous abdominal enlargement. Labor, as reported by Dr. Brown, was protracted, the head could be felt high up, but did not readily engage in the bony pelvis. Os quite flaccid and dilatable; indeed so much so as to allow easy adjustment of forceps, which he did after waiting a long time, and observing no advance. The doctor found no unusual difficulty in delivering one head, which was living at the time of delivery. Failing to deliver the body by any sort of reasonable force or manipulation, and being impressed that there was some abnormal condition, the doctor sent for me. It was two hours or more from the delivery of the first head until my arrival. Dr. Brown now anesthetized the patient and by holding the delivered head well up over the symphysis, and by deep pressure, I could determine by the touch that there was another head somewhat wedged into the bony pelvis. Thinking only of an ordinary pair of twins, I attempted to force the second head back into the uterus. Although there was quite a roomy vaginal canal, any manipulation in this way was necessarily greatly handicapped, and I could not carry this head up at all. Seeing no way out of the difficulty, and the possibility of a monstrosity presenting itself, before decapita-

ting the head now already delivered, I determined to see if it was possible first, to bring the other head down with the forceps. Having the old granny, who had been in charge of case previous to Dr. Brown's call to it, to hold the de-

livered head well up over the symphysis, I managed to adjust the blades on the second head, and to my delight, had but little difficulty in delivering it; and with one head in each hand, pressing them together, the bodies followed without very much trouble. The uterus and vagina were

well irrigated with saline solution, and vulva was well washed, the cloths and bedding changed, and the mother put to bed considerably exhausted, but made an uneventful recovery.

It would be unprofitable to consume the time of this Association in discussing the cause of such monstrosities. Authorities are not agreed as to the original formation of such homologous twins and double monsters. It is generally accepted that both originate from one blastula of the yolk, but whether the blastoderm membrane presents two germinative areas, which later fuse more or less into one being or one area, which becomes more or less divided, will perhaps ever remain a matter of speculation. The union in embryo life may take place either in the cephalic, median or caudal regions, and we have cephalopagus, thoracopagus, or ischiopagus, which are the three general divisions of this class of monstrosities; of course there may be various modifications, both as to the extent of union and divergence of development. If there is an unequal development of the embryos, one may be nearly normal, while the other may be quite rudimentary, and form a mere appendage; or both may be fairly well developed, while one is but little more than a miniature of the other; or, as Muller says, "The rudimentary fetus may even become completely enclosed by the larger one." Such extensive union as the one presented, reaching full term, with probable viability of both, seems, from my limited research, to be extremely rare. Almost a facsimile of this specimen was presented by Dr. W. W. Jaggard before the Gynecological Society of Chicago some years ago. It is somewhat interesting to note the summary of observations as to the frequency of malformations. Peusch has found that malformations are more frequent in illegitimate than legitimate children, and all malformations are more frequent in females than males. In one hundred thousand births Peusch has found four

hundred and fifty-four simple malformations, sixty-one single monstrosities, and two double monstrosities.

DISCUSSION ON DR MOORE'S PAPER.

Dr. R. M. Harbin of Rome: I have been very much interested in the case of monstrosity related by Dr. Moore, and I am reminded of one which I would like to report as illustrating the probable effects of maternal impressions. The case occurred in the practice of my father. I will relate the circumstances and you can draw your own conclusions. The woman was of middle age, the mother of a number of children, and was three months pregnant. At about this time her brother-in-law had his forearm amputated. She visited her brother-in-law and examined the stump of the amputation wound about a week after it had healed up. At the time she had examined the arm she said she felt a peculiar thrill pass over her, and when she was delivered of her child, the child's corresponding arm was absent at the corresponding place of the arm, and resembled in every respect an amputation.

Dr. J. G. Hopkins of Thomasville: After all, this particular monstrosity is not as rare as it seems to be. I saw an exactly similar case in 1866, although I was not then a practitioner. It was delivered by my father, Dr. T. S. Hopkins, in Thomasville. The woman was a mulatto, and the father, so the mother said, was a white man. As far as I can judge it was identically the same as the specimen exhibited by Dr. Moore, and it was sent to the Museum of the Savannah Medical College. Then another similar case was reported as having occurred in Chicago, and which was alluded to by Dr. Moore. There is also one described in an old edition of Ramsbotham's Process of Parturition, a picture of which is on exhibition in St.

Bartholomew's Museum in London. So we do have this monstrosity every now and then.

I have no confidence whatever in the theory of maternal impressions. The case cited by Dr. Harbin is a strong one it is true, but one swallow does not make a summer. If every pregnant woman who had seen an operation, or had been impressed to a marked degree by something she had come in contact with or had seen, had it impressed upon the fetus, there would be very few of us born without some peculiarity. I do not think it has any influence at all on the condition of the fetus.

Dr. S. C. Benedict, of Athens: As to the possibility of the case being one of fusion, I will say that in 1890 I reported in the *Medical Record* a case of enormous umbilical hernia without cutaneous covering. When the child was born I discovered a black appearance in the abdomen about four inches in diameter. The umbilical cord came out over the pubes. The mass was covered by the reflection of the membranes from the sac, and through it could be seen and felt the coils of intestine near the region of the liver. I could not find a similar case on record. One author, in being asked what he would do if he had encountered such a case, said he would do nothing. Knowing the child would die if something was not done, on the second day the child was anesthetized with chloroform. I operated, closed the opening and the child is now living. I mention this case to show how it is possible that fusion might have occurred. If the woman had been pregnant with twins the probabilities are, with the abdomens apposed, this condition would have been brought about.

Dr. Charles J. Montgomery of Augusta: I recall a monstrosity shown in Barnum's circus (Melie Christine) in which there were two women joined together. They had separate heads, separate limbs, but only their backs were joined instead of their abdomens.

Dr. S. C. Benedict of Athens: I remember the interesting teratological case of a man (Laloo), reported by Bruchman, who had a cleft in the stomach, a twin child hung from his abdomen, and he made his living for years in England by exhibiting himself. If I remember rightly the fetus was hanging by the neck with the head inside of the abdominal cavity.

Dr. Moore (closing the discussion): In the short paper reporting this monstrosity, I did not go into many of the theoretical explanations of such deformities and freaks of nature. The one mentioned by Dr. Harbin—maternal impressions—has had its advocates from the time when Jacob took him rods of green poplar and hazel and chestnut trees, and placed them before his flocks where they came to the watering-places, whereby his flocks conceived and brought forth cattle ring-streaked, speckled and spotted, down almost to the present time. In the early times there was a popular belief that the peculiar sensations, emotions and sights experienced by pregnant women were frequently transmitted to the child, and were manifested either in defects or marks. Whether there is any good reason in fact for this old popular belief or not, there are, to say the least, many wonderful coincidences, lending strength and plausibility to the belief. One of the most remarkable incidents, which I think could not have been due to maternal impressions, that I ever knew occurred in the practice of Dr. Hammond, an honorary member of this Association in his day. He told me that while he was practicing medicine in the country there were two families at loggerheads. The men hardly went to town together without getting into a fight. One was a great fighter, and almost always came home from town bunged up, particularly on election days in the ante-bellum time. On one occasion when going to town, the wife of the fighter was expected to be confined, and she was in great suspense to hear from her

husband, knowing that he was always ready to fight. She asked everybody she saw returning from town whether her husband had been fighting with any one, and it was learned that he had had a fight and that his opponent bit off a moon-shaped piece of his ear. The woman was subsequently confined and it is said that the child was born with a moon-shaped piece taken out of one of its ears.

INDICATIONS FOR AND ANTISEPTIC TECHNIQUE OF UTERINE DRAINAGE AFTER LABOR AND ABORTION.

By R. R KIME, M.D., Atlanta, Ga

When we consider that at least thirty to fifty per cent. of diseases of women are traceable directly or indirectly to injuries or accidents during or after labor and abortions, that fully one-half of that number are due to infection in some one of its various forms, we need no apology for presenting this subject.

While some would consider "puerperal Fever" so-called, a threadbare subject, and others would fain relegate it to oblivion by saying it is a preventable disease—that the physician is responsible fo rall such cases—nevertheless it is always with us, and many a woman suffers from its ravages.

Volumes have been written, many experiments made, many lives lost, and the question is far from being solved to-day.

Semelweiss and Holmes began investigations and promulgated views which have been reinforced by the germ theory of disease and rendered fertile by the antiseptic and aseptic era, which now stand out as landmarks in the prevention and relief of puerperal infection.

Life-saving measures have thus been evolved which may ultimately lead to more accurate scientific methods in the prevention and relief of puerperal infection and its consequent results. As an evidence of the unsettled condition, we have but to briefly review the methods of treatment

advised and practiced for the prevention and relief of these conditions.

Some use ante-partum douches, some use post-partum douches, others condemn both. Some use antiseptic methods of prevention, some aseptic methods, others none whatever. Some advise washing out the uterus with strong antiseptics in puerperal infection, some use weak antiseptic solutions, others condemn the use of any. Some advise curetting uterus in all varieties of infection, some curette only in putrid infection (sapræmia), others condemn the curette in all cases. Some advise abdominal section in severe cases, some perform hysterectomy, others condemn such operative measures and resort to vaginal drainage by incision as a life-saving measure. Some advise stimulants in large quantities, some depend upon strychnia, quinine and nourishment, while others kill their patients with the coal-tar group as antipyretics. Some use the serum treatment, some the nucleins, others fail to get good results from either. Some administer opiates in full doses, some advise salines, while the author favors elimination and drainage.

Happy is the man that can judiciously select and apply to each individual case such treatment as will not only save life, but conserve the generative organs for future physiological functions.

In the treatment of puerperal infection we must consider the anatomical relations and physiological functions of the female generative organs. The direct communication between uterine and pelvic cavities by way of the fallopian tubes, the intimate relations of the pelvic organs by the lymphatic and vascular channels rendering the female peculiarly susceptible to the invasion of infection.

When we consider the great changes wrought in the generative organs during pregnancy and the nearer to full term the greater the size of the uterus, more vascular blood supply, greater activity of lymphatics with consequent

retrograde changes necessary to complete involution after emptying uterus, we have indications which should direct our treatment of these cases.

An infected uterus after full term labor is large, flabby, relaxed, *will not drain itself however patulous the os*, does not contract so as to empty cavity and shut off the avenues of infection.

The placental sight, condition of endometrium, and retrograde tissue changes necessary to involution require, even demand, a process of elimination or drainage from uterine cavity even in normal cases, much more so when infection occurs.

When we have putrid infection, septic infection or pus formation in other parts of the body, the rule is to open up, disinfect, wash out and drain. Why should the uterus be an exception to this rule?

Nature establishes a flow, current of elimination, the lochia after labor. Obstruct that channel of elimination and what is the result? This discharge unloads the endometrium, relieves the lmyphatics, throws off toxins, débris and germs that would otherwise be retained or absorbed and cause trouble.

I do not believe all cases of puerperal infection are due to contamination by physician or nurse, nor that the physician can always prevent such infection.

We certainly have sufficient clinical evidence to prove that where a uterus fails to properly drain itself (which often occurs), remaining large and flabby, a blood-clot, portions of placenta or a cotyledon is retained, infection occurs from putrefaction and absorption of uterine contents. Such cases are usually sapremia or putrid infection, but may be a mixed or true septic infection, due to presence of septic germs in genital tract previous to confinement.

It is in these cases of sapræmia (putrid infection) where

some physicians get good results from the use of curette, antiseptic douche and gauze tampon because the offending material is removed, absorption checked and uterus stimulated to contraction.

In septic infection the question is more serious, as *the curette and gauze tampon* have killed more patients than they have saved.

It is time the authors of our text-books on obstetrics were recognizing the dangers of such treatment and devising better methods, or at least pointing out the serious danger of *curetting a puerperal septic uterus.*

When an active puerperal septic condition exists long enough to produce constitutional and local symptoms and signs sufficient to establish a diagnosis, the curette cannot reach the diseased parts, for the germs have extended beyond the endometrium into the uterine wall, blood-vessels and lymphatics, and in rapid septic cases has extended so far that even hysterectomy is not justifiable in but few instances.

The curette not only fails to remove the diseased tissue and germs of infection, but produces serious traumatism, breaks down nature's barriers, dislodges thrombi, increases absorptive surfaces, developing hemorrhage and shock frequently followed by chills and elevation of temperature.

To these conditions add the use of the gauze tampon, and if the patient recovers it will be in spite of the treatment.

I care not if small portions of adherent placenta or cotyledon, be present, *efficient drainage* will eliminate the toxins sufficient to wait for nature to separate these structures far more efficiently than the curette; then they can easily be removed by forceps without traumatism to parts and with far greater safety to patient.

A gauze tampon does not drain and should never be used in a puerperal septic uterus except to check hemorrhage. It is saturated with blood by the time the uterus is packed,

the gauze is compressed in uterine cavity constricted in cervical canal, shutting off capillary current while the débris, corpuscular elements and germs soon fill its meshes and obstruct drainage, else it would not check hemorrhage. In a few hours the pulse and temperature rise as an index of obstructed drainage; remove the tampon, irrigate uterus, then the pulse and temperature fall as a result of relieved obstruction.

Those that advocate washing out uterus say irrigations should be repeated every few hours. Why? Because the uterus will not drain itself and in a few hours the toxic elements accumulate in sufficient quantity to produce constitutional symptoms.

Antiseptic irrigations of alcohol, formaldehyde, mercuric chloride, carbolic acid, creolin, iodine in weak or strong solutions do not take the place of drainage.

Strong antiseptic solutions fail on the same basis as the curette; they cannot reach all the diseased tissue or germs; they affect only the endometrium, usually coagulating a film upon its surface and the septic germs play havoc beneath. If they are frequently repeated they interfere with nature's repair of endometrium, set up irritation, favor absorption by producing raw surfaces and frequently constitutional effects of the drug used.

If weak solutions are used then they must be often repeated, thus destroying rest of patient, require constant attendance of the physician, and if not properly used, the disturbance of patient, irritation of endometrium, pain and exposure of patient, counterbalance the good effects obtained.

The indiscriminate, reckless use of stimulants in these cases does not remove nor eliminate cause of the disease, and should be relegated to oblivion the same as the indiscriminate, reckless use of opiates and the coal-tar group.

The serum treatment of these cases is on trial with a hope that some good may result.

So far as the present treatment of these cases are concerned, I consider uterine and alimentary drainage and

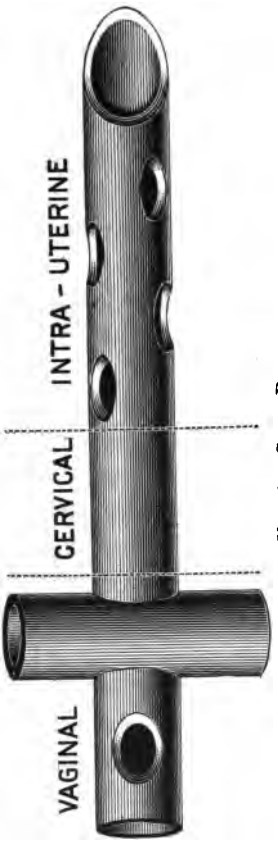


FIG. 1. SOFT RUBBER.

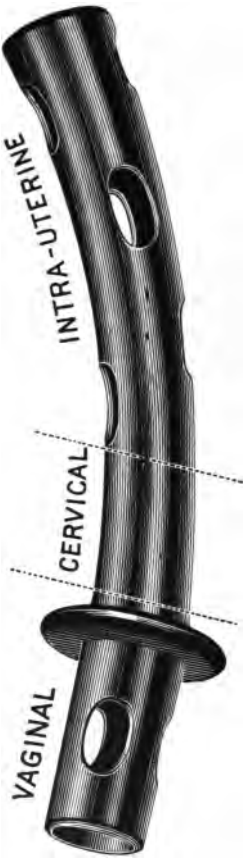


FIG. 2. HARD RUBBER.

elimination the most potent factors at our command. Alimentary elimination secured by salines, but not carried to the point of debilitating and weakening the patient and not too often repeated.

Uterine drainage is most important and is secured by use of drainage-tubes and strips of gauze or wicking.

The drainage-tubes may be of soft rubber, hard rubber, glass or aluminum. So far I have had best success with soft rubber tubes, the next best thing being hard rubber, both made as seen in cuts—black or red.

Use the *best quality* (black or red) of soft rubber tubing, as large as cervix will admit, usually one-half inch in diameter, cut so as to be long enough to reach fundus and protrude one to one and one-half inches from cervix into vaginal canal; cut large openings in intra-uterine portion, two in vaginal portion, one anterior and one posterior, near end of tube. Now cut off a piece of tubing same size one to one and a half inches long, in center of which cut two openings just barely large enough to admit the other tube and fit snugly to prevent slipping. Place the short tube on the other tube so as to form a -|- just above the openings in vaginal portion. When in position the cross bar should rest against cervix, and the ends impinge on lateral vaginal walls sufficient to prevent tube slipping out of uterus and yet not make sufficient pressure on vaginal walls as to produce irritation or ulceration; the length of cross bar should depend upon width of vagina.

When tube is in position the openings (large and plenty) in uterine portion give free advent of all discharges; the cervical portion being *without openings* conducts discharge to the vaginal portion, where it finds free exit through the two lateral and end openings of tube. The two lateral openings are essential to successful drainage, for frequently the end opening becomes obstructed by burrowing in vaginal folds.

If the tube is curved it should be introduced so as to correspond with the curve of parturient canal whether uterus be anteverted, retroverted or in normal position.

The soft rubber tube being flexible accommodates itself

to the parts without any undue pressure, hence its advantage over non-flexible tubes.

Those not accustomed to use of the tube will find the hard rubber tube more convenient and easier handled.

With all instruments sterilized, water boiled, solutions for irrigation ready, patient is placed across bed, hips near edge on a piece of oil cloth, feet and legs protected, resting on chair to either side with basin between to catch water. Irrigate vagina, washing out discharge, then introduce a Sims or bivalve speculum, Sims usually preferable, expose cervix and steady uterus with tenaculum, introduce steel dilators, hold cervical canal open until uterus is thoroughly irrigated.

Grasp intra-uterine end of tube (soft rubber) with slightly curved uterine dressing forceps, anoint end only with carbolized vaseline, cervix steadied with tenaculum, carry tube to fundus of uterus, then steady the tube with tenaculum, forceps or finger and withdraw the uterine dressing forceps, leaving tube in position.

If capillary drainage is also desired use a strip of gauze the length of drainage-tube, one end placed in grasp of forceps and carried to fundus with drainage-tube, introducing both at same time, leaving the other end protruding through cervix in vagina.

The tube should be removed and uterus irrigated once or twice in twenty-four hours in severe cases, being governed by pulse and temperature. If they rise it is an indication for irrigation or that the drainage is obstructed.

After first irrigation and tube worn for twelve to twenty-four hours, dilators will not be needed as cervix will remain open and not obstruct the return current.

Always irrigate vagina, then uterine cavity with *weak* antiseptic solution or plain hot water (unless it be at first or second irrigation for reasons previously stated), before placing tube. This irrigation washes out any débris or re-

tained toxic material in uterine cavity or vaginal canal, preventing its absorption, and adds to the efficiency of drainage.

The drainage-tube should be soaked in some *very* strong antiseptic solution while irrigation is performed, then rinse in sterilized water before introducing.

To introduce the uterine drainage-tube by sense of touch without use of speculum is as great a breach of aseptic work as to introduce uterine sound or catheter by touch without cleansing the parts.

Always irrigate vagina, expose cervix with speculum and irrigate uterus before introducing tube, so as to do aseptic work with as little pain and discomfort to patient as possible.

Locate fundus of uterus in each case, using bimanual examination and catheter of irrigator, bending the catheter to suit uterine curve; by so doing the irrigating catheter can easily be carried to fundus and the drainage-tube guided in the right direction to facilitate its introduction with little pain to patient and less traumatism to parts.

I emphasize these minor points in details and the prevention of pain because I know of physicians who have failed to get good results and produced so much pain that patients have rebelled and refused to allow them to carry out treatment, which was due to their faulty technique and methods, and not to the principles and results of uterine drainage properly utilized.

As an irrigator always use a metal male catheter of one piece, about No. 17 or 18, French scale, with moderate curve to suit position of uterus; a double curve will frequently facilitate its introduction.

Avoid soft rubber or linen catheters, as they frequently carry infection, being easily roughened, cracked, at times broken and cannot be properly disinfected; the metal one can be boiled, heated or put in strong antiseptic solutions.

Slip the metal catheter into tubing of fountain syringe or connect it by a short piece of rubber tubing to an ordinary household syringe to complete the outfit, all being rendered aseptic before use.

All instruments used with septic case should be left with patient for subsequent use and sterilized when taken away.

As to the drainage in cases of incomplete abortion, there are different conditions to deal with. We limit the term abortion in this paper to interruption of gestation any time prior to the complete formation of placenta. The uterus is small, contracts readily, cavity small, endometrium hypertrophied, placental site less vascular, the decidua serotina more adherent, smaller bulk, more difficult to separate or remove, greater demand for instrumental interference, cervix less obliterated, os smaller, parts less vascular with lessened chances of infection, and a lessened metamorphosis of tissue requiring absorption by lymphatics to complete involution; hence less demand for elimination and drainage than a full term labor.

At least ninety per cent. or more of cases of infection occurring during or after abortion are putrid infection; hence easier controlled and less demand for drainage.

To relieve such clear and wash out uterine cavity antiseptically, then tampon with gauze. The tampon in these cases is used to check hemorrhage after removal of maternal structures by use of curette or forceps, it also acts as a surgical dressing, protecting denuded area as well as stimulating uterine contractions. If portion of the gauze is saturated with pure camphorated phenol (gum camphor two parts, carbolic acid, pure crystals one part), it acts as an antiseptic, prevents further infection of parts and further elaboration of the putrid toxin.

If an active septic infection occurs, then drainage is demanded even in cases of abortion. Such cases are diagnosed by the *severe* constitutional and local symptoms with

rapid inflammatory invasion of the pelvic organs, uterus, tubes, ovaries, lymphatics, blood-vessels and pelvic cellular tissue, part or all.

The dangers and contraindications to use of curette and tampon is septic cases increase in proportion to the advance in pregnancy and the increase in size and vascularity of pelvic organs.

While we advocate an antiseptic gauze uterine tampon after curetting the uterus in cases of abortion, it is to act as a surgical dressing, prevent further infection, check hemorrhage, stimulate uterine contractions and not for purpose of drainage.

The tampon should be removed in twenty-four to forty-eight hours and not repeated.

If after gauze is removed there is elevation of pulse and temperature with constitutional and pelvic disturbances, then drainage and elimination are indicated.

The diet and constitutional treatment of these cases do not come within the scope of this paper.

THE TOPICAL USE OF ALCOHOL IN PUERPERAL INFECTION.

By GEO. H. NOBLE, M.D., Atlanta, Ga.

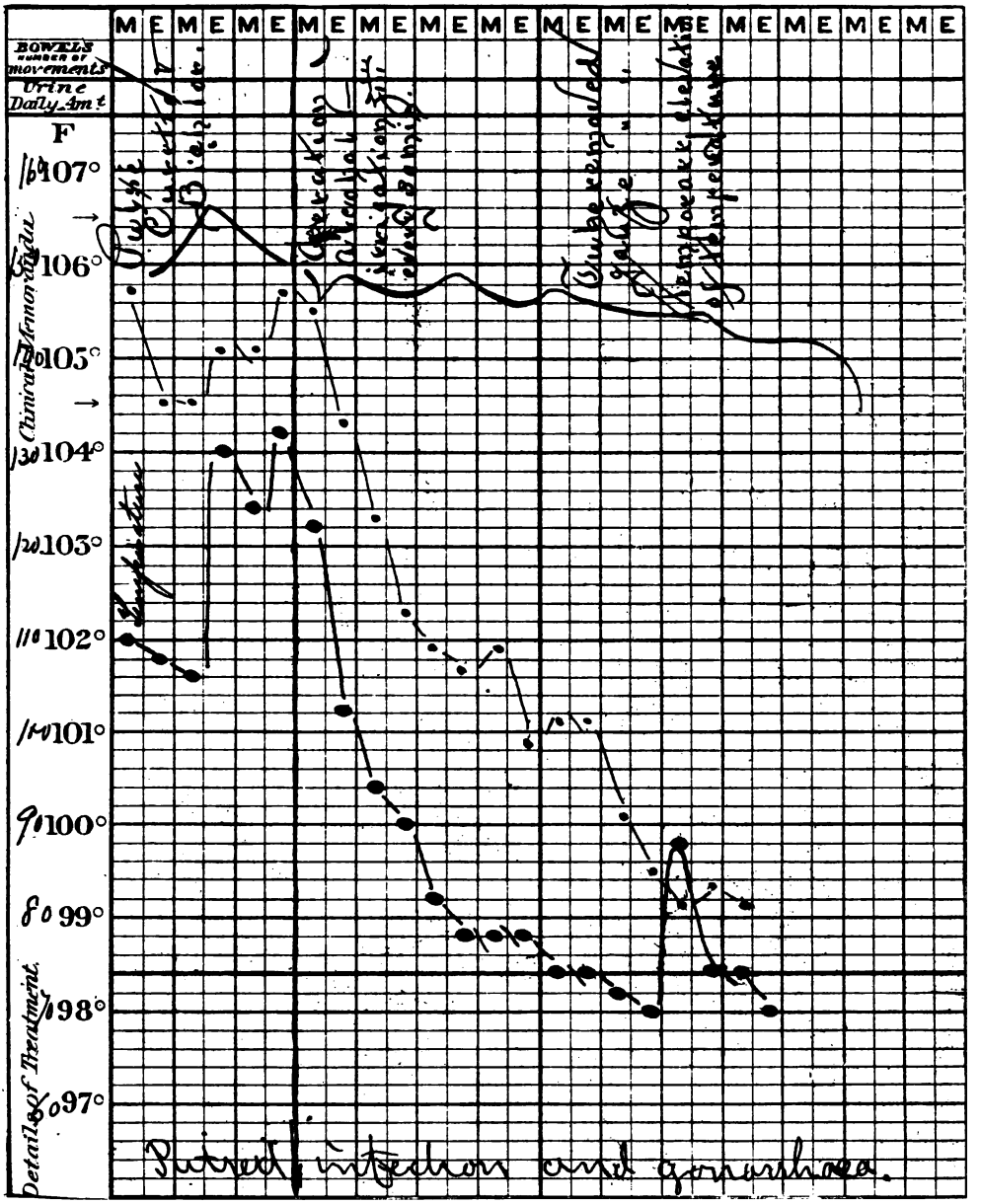
The purpose of this short paper is to further the introduction of a measure for the relief of septic infection that is proving itself of very great value to the profession; consequently no attempt at an exhaustive treatment of puerperal sepsis in general will be made, but will be limited to such remarks as may be necessary to clearly define the uses of alcohol as a topical agent.

It is equally applicable to cases of saprophytic and pus-producing infection, so that no distinction need be made regarding the form of infecting bacteria.

The intelligent use of alcohol, therefore, depends more upon an accurate knowledge of the extent of the infection than upon its character.

It must be assumed at the start that the infection is confined to the cavity of the uterus, the mucosa, the thrombi in the ends of vessels and the placental cite; otherwise local applications must become useless. If pyosalpynx, uterine abscess or peritonitis exists, the disease has gone beyond the reach of such measures. Diagnostic ability will be called upon to determine suitable cases, and where it fails to make proper selections, failures must be expected, for the man, who, to-day, fails to make the distinction between infection restricted to the cavity of uterus and that which has gone into the deeper tissues, is the man that is losing his patients.

After thoroughly cleansing the uterine cavity, introduce a sterile rubber catheter, which has had previously attached to its tip a strip of sterile gauze about as wide as the thumb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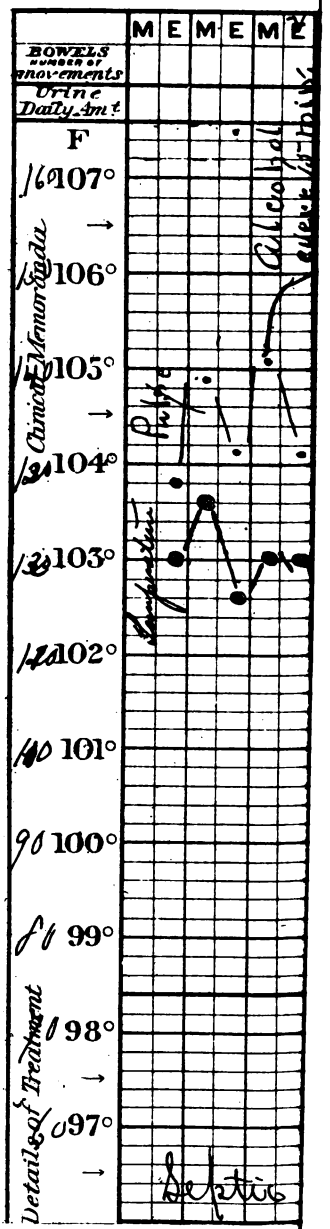
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and two yards long; then carefully insert the gauze around it, taking care not to pack tightly, as its object it to act as a re-tainer for the alcohol, and not as a drain or tampon. A few drachms of 95 per cent. alcohol is injected through the catheter every fifteen to thirty minutes until marked improvement has taken place, and as the case progresses, the intervals are increased. The end of the catheter projecting beyond the vulva must be kept thoroughly buried in sterile or antiseptic gauze to prevent renewed infection through the instrument.

Carosa uses 25 per cent. alcohol, but the writer finds that there is no danger in the careful use of the stronger preparation, and as it is a very much better antiseptic, its use is commendable.

These dressings are left in place for five or six or eight days, when ordinary supporting method will answer, unless the sepsis is marked, then it may remain longer, except when the drainage is interrupted by coagulations in its meshes; in that case it may be replaced by fresh gauze. So far I have not found it necessary to use more than one dressing in the uterus. This first chart shows that the case treated by the ordinary method of curetting and bichloride of mercury irrigation, progressed irregularly and unfavorably up to the fifth day, when the alcoholic treatment was adopted. From that time on the temperature and pulse curve shows a steady downward tendency until recovery.

In other cases it was quite noticeable that when the intervals between the injection of alcohol were increased too soon there was a temporary rise in temperature.

The second chart represents the progress of an apparently hopeless case. She was brought into the hospital twenty-two days after confinement. Had mixed infection, streptococci and gonococci. Extremely anemic, semi-conscious feeble and rapid pulse, high temperature and saturated with infectious matter. The uterus was cleansed under

ether. Two spots about the width of the finger and an inch long, of soft tissue were scraped away, the curette going nearly through the uterine walls. Other parts of the uterus were apparently healthy. The alcohol treatment was used, and with the excellent results shown upon the clinical chart.

A very surprising feature was the absence of chills after curetting, a feature observed in each case that came under my observation. These two cases are fair examples of the number treated in this way, and illustrates the ease with which patients of this class are handled. After the gauze is once introduced, the nurse does the rest by frequent injections of alcohol, which, indeed, is less laborious than the usual douching, etc.

One great beauty is that any one who can be clean and careful can use this treatment, and when once used its subsequent employment in similar circumstances is insured. So far I have directed the treatment of eight or ten cases, which were seen late, with one exception, and it came in on the second or third day after abortion with high temperature, for saprophysis; was curetted and douched antiseptically, but the pulse and temperature curves were erratic and high. On the fourth day in, the house surgeon was instructed to use the alcohol the next time the temperature went up to 103 degrees, which occurred in the succeeding twelve hours. The result was prompt and favorable. Thus acting in cases of putrescent material as well as in septicemia, the alcohol must possess the power of preventing the development of spores. It acts best in cases where the water in the tissues is greatest, thus suggesting that its dehydrating properties take away from the spores one of the necessary elements conducive to their development, *moisture*, and substitute an antiseptic (alcohol).

It may be employed in connection with other treatments,

for instance, the anti-streptococcus serum, surgical measure directed to the relief of pus or septic matter in the appendages, peritoneal cavity, etc., where there is coexisting infection of the uterine cavity, thus cutting off constant renewals of infection at the point of origin, and also affording some stimulation by absorption of alcohol. As alcohol possesses no mean antiseptic properties and is possessed of less danger than most active agents of this class, it is but reasonable that its employment in a way that keeps the parts in a constant bath must give better results than an occasional douching of stronger and more irritating solutions.

PUERPERAL ECLAMPSIA, AND SOME PROBABLE CAUSES OF IT.

By J. I. GRIFFITH, M.D., Danielsville, Ga.

I have been stimulated to present this paper because of the number of cases of puerperal eclampsia which have recently come under my observation. Perhaps there are known to the medical profession but few diseases whose pathology is more uncertain, or one in which we have more dread of its occurrence, than we have in puerperal eclampsia. In presenting this paper for your consideration it will be necessary for me to review briefly what has been written on the same line by some others. This is a question of such grave occurrence to the practitioner who has had to deal with puerperal eclampsia, that he has found it unsatisfactory to accept the statement, pathology, and treatment of other authors. We are not all agreed as to the cause and cure. Dr. Hare in his recent works on therapeutics, says that what is known of its etiology justifies the following statement:

1. The cell activity of mother and fetus produces excrementitious substances which will surely prove virulently poisonous to the whole organism unless they are voided or made harmless by the excretory organs. Assuming that it is true that nature imposes these new duties upon the organs of the child-bearing woman, and that it is the mother and not the child that will be poisoned, hence it is the mother's and not the child's excretory organs that must eliminate. He fails to tell us what particular organs must perform this work.

Dr. Potter insists, that in order to arrive at an intelligent treatment, there must be a clear understanding of the conditions we are called upon to treat. It must be understood that we are dealing with a subtle toxemia, not yet understood as to origin or material, nor even to its modus operandi. Symptomatically, we have to deal with a severe headache, edema, albuminous and scanty urine, diminished urea, excretions, and finally cyanosis, convulsions, and coma or semi-coma, pereclamptic state, and the last, true eclampsia. Again, the woman may be anemic or plethoric, young or middle aged, and eclamptic seizure may be ante-partum, intra-partum or post-partum; all these factors serve to modify or control the plan of treatment to be proposed in a given case. The treatment of eclampsia, too, should be classified as, (a) preventive and (b) curative. The preventive may be subdivided into medicinal and hygienic, and the curative into medicinal and obstetric. Manifestly, the first duty will be to interrogate the kidney as to its sufficiency and integrity. A qualitative and quantitative analysis of the urine must hence be made at the outset. Albuminuria is not a reliable symptom of renal disease; nor yet is a diminution of urea excretion an infallible indication of approaching eclampsia—exceptionally, all of these conditions may exist and yet eclampsia not result. These are indications, singularly and collectively, and there is existing toxemia, that there is defective elimination, and that there must something be done to correct a faulty relationship between nutrition and excretion. If the physical signs and prodromes are recognized early, it may be expected with reason that hygiene and medicine will correct the errors that are so rapidly tending toward eclampsia.

My first case was a primipara about eighteen years old, rather small and of slender build. I was not present at her confinement, nor had I seen her prior to that time.

From reports she had been in bad health for several months; but still she did not consult a physician. She was delivered on Saturday morning by a midwife, and from accounts had no serious trouble. She seemed to be doing well enough until the following Monday morning, when she was complaining of a severe headache, and restless. Then she was seized with a convulsion. She had had twelve by midnight Monday when I arrived. In the intervals between the convulsions she was in a comatose state. Her temperature was high, most of the time ranging from 102 to 105 degrees. She was conscious next day, Tuesday, by noon.

The second case was a multipara. She was large and fleshy, and complained with headache and uneasy feeling. She was seized on Monday morning with convulsions. When I arrived at six o'clock that evening she had had ten convulsions. She was at full term. I made examination; the cervix was not dilated. Something had to be done. I gave her three hypodermics of morphine and atropine from six until twelve. At two she became conscious, and said she wanted water to drink. Still no sign of labor. I waited until next day, then labor came on, and she got through all right without any more convulsions. I then put her on veratrum, and gave her calomel in broken doses, and followed it with senna tea. She made a good recovery without any more convulsions.

The third case was a primipara. Blonde; general previous health good; was delivered of a healthy child by her physician. Next day, in the absence of her doctor, I was summoned to see her. She had had six convulsions. I gave her morphine and atropine hypodermically three times in four hours; then I gave her broken doses of calomel, and followed it with senna tea; then put her on veratrum, six drops three times per day for several days. She made a good recovery without any more convulsions.

The fourth one was a multipara, aged twenty-three, short and compactly built. I was summoned the next day, and when I arrived she had had four convulsions. I treated her as before. A good recovery in the usual period of time.

Some probable causes may be albuminuria, toxemia, uremia and pyelitis, pyo-nephritis.

After all, in my opinion, we must look to the kidneys for the cause in the majority of the cases of puerperal eclampsia, though not to them entirely. The pressure on the uterus prevents a free outlet of the urine, and it is blocked up, so to speak, in the pelvis of the kidney, and there may undergo decomposition, and there cause enough irritation to set up an inflammation. This may soon become pyelitis or a pyo-nephritis, as this, no doubt, helps to cause simple nephritis. In my opinion, the examination of the urine in pregnant women is too often neglected, and when we find pus in the urine we pay too little heed to it.

Albumin, I think, is one of the causes of puerperal eclampsia, for we always find it in examining the urine of pregnant women; and also pyelitis and pyo-nephritis bear their part. My opinion is, that the pregnant uterus ponds up, as it were, in the kidneys, and the poison is left in the system that nature would have eliminated, if it could. When I find albumin in the urine I give chloroform in 10 m. doses, three per day, in sweet milk.

DISCUSSION ON THE PAPERS OF DRS. KIME, GRIFFITH AND NOBLE.

Dr. Graham of Savannah: In discussing Dr. Kime's paper I wish to call the attention of the Association to what I consider an interesting point. It was my good fortune to be stationed for three years in the United States service among the Sioux Indians. As you all know, the

majority of the Indians are a dirty class of people. At the post where I was stationed there were about ten thousand Indians. I investigated the records, and of the large number of women confined I was only able to find two cases of puerperal infection occurring among Indian women. These two cases were treated by white physicians, who had introduced the finger into the vagina. These two women, by the way, were semi-civilized, half-breeds, French and Indian. It is the custom among the Indian women not to allow the physician to introduce his finger into the vagina for any purpose before or after labor. I was called to several cases of confinement and had simply to sit and wait until labor was over. Usually Indian women have no trouble and get through labor well. When they do have trouble, they do not take interference very well. It is remarkable that of several thousand cases of labor among the Sioux Indian women there were only two cases of puerperal infection, and the infection undoubtedly followed in these cases the introduction of the fingers by the two white physicians who had preceded me at that post.

As to ante-partum douches, I agree with the essayist that they are not indicated, for the simple reason that the vaginal secretions possess an antitoxin of their own. We all know that the secretions of the mouth and of the bronchial tubes possess an antitoxin within themselves which prevents the growth, life and regeneration of bacteria. If this were not so, we would be continually in danger of some form of infection. For that reason, I am not in favor where the parts are normal, of using any ante-partum douche whatever. Let nature take its course and interfere with it as little as possible. It seems to me, where we give ante-partum douches we destroy the antiseptic properties of the vaginal secretions.

Another point: I think the treatment depends largely upon the character of the infection. Usually we have to

deal with infection by the streptococcus pyogenes aureus and albus and microocci, but we may and sometimes do have to deal with diphtheria, with tetanus, with gonorrhea, or, as I saw in one case, with infection by the vibrion septique of Pasteur. This case I saw in a clinic in Europe, and it was an extremely interesting one. Of course the treatment in each one of these infections, principally the diphtheria, would be antitoxin; tetanus perhaps the same. We have different kinds of infection to deal with.

I agree with the author as to the use of the curette; but when we have an infected wound, if we drain it freely, and use local antiseptic treatment, we can frequently abort a septic process that has already started. If the same condition exists in the uterus, if we can enter the uterine cavity and destroy the septic focus, we prevent also absorption of toxins; for our patient is not suffering from the migration of bacteria, but from toxins elaborated by the live bacteria that grow in the endometrium. If we do not see the cases early enough after the bacteria have migrated from the endometrium and gotten into the blood stream, there is no use in introducing anything into the uterus as a treatment, because it does no good. I will relate briefly two illustrative cases bearing on this point.

I was called to see a woman about three months ago who was delivered of twin feti (dead). The feti had undoubtedly been dead one month in utero. The patient progressed nicely up to the third day after delivery, when she had a chill, the temperature rose to 104 and pulse was 140. I immediately examined her blood for the plasmodium malariæ, but found none. I concluded that the case was one of sapremia or septicemia. I called to see her again in the afternoon, introduced a combined irrigator and dilator of German pattern, and irrigated the uterus with a two per cent. solution of formaldehyde in water. One hour after the irrigation the temperature declined. I

might say there was nothing washed out of the uterine cavity except a few shreds, no remaining placenta. The lochia was suppressed and looked a little grumous. After the irrigation, which lasted about twenty minutes, and I made use of formaldehyde solution, the temperature declined to 103. The patient at the time the temperature was high was in a semi-comatose and semi-delirious condition. She began to improve mentally, and at twelve o'clock at night the temperature was 102. The next day the temperature again went up to 102½, and I immediately followed with another irrigation of two per cent. solution of formaldehyde in hot water, shortly after which it went down to 101, remained at that point that night, and rose at four o'clock the next morning to 101½. I again irrigated with formaldehyde solution, after which the temperature was reduced to normal, and the patient made an uninterrupted recovery. The infection in this case was purely endometric.

Another case: I was called in consultation to see a lady about four month ago. She had been delivered of a child by a midwife about twenty days before I saw her. She was complaining of intense pain in the groins. She had endocarditis, which we at that time considered to be of rheumatic origin. The temperature followed the rheumatic curve. The joints were swollen, red and inflamed; the case looked to all appearances to be one of rheumatism. I examined the blood for plasmodium and found none. I made cultures from the blood by the direct method in agar-agar and gelatine, and on the third day under the agar-agar there were developed cultures of the staphylococcus pyogenes aureus and albus, the case being pronounced one of septic infection, and with probably multiple abscesses and septic endocarditis. Ten days later the patient developed multiple abscesses in both elbows and knee-joints and in both gastrocnemial muscles, and along the ridges of the latissimus

dorsi. Another physician was called in, who gave no more hope of recovery than I had done. A third physician was called in, who gave them more hope. I was discharged. This physician thought he could cure the case. I thought he could not, but I was willing to let him have a chance. He took the case out of my hands, and I understand that in about ten days the patient died. Before death, she developed an abscess in the left lung. No post-mortem examination was held. Here was a case where washing out of the uterus was of no value at the time I saw her.

Dr. Kime: Are not most of the Indian women well developed?

Dr. Graham: Yes, they are.

Dr. Kime: How long do they remain in bed after confinement?

Dr. Graham: Sometimes they do not remain in bed at all.

Dr. Kime: What about the lochial discharge?

Dr. Graham: About the same as in white women.

Dr. J. W. Duncan of Atlanta: I was very much interested in the three papers that have been read. I was particularly pleased with the paper of Dr. Kime, because he gave us some good points.

With reference to the paper on puerperal eclampsia, I understand the author uses veratrum, morphine and atropine. Personally, I prefer the use of veratrum, morphine and pilocarpine. I like pilocarpine better than I do atropine. I think we want to get something to act quickly, to assist in eliminating the poison. The kidneys may not be doing their work well, and consequently the skin should perform some of the function of the kidneys. I think we can eliminate a good deal of the poison by use of pilocarpine. I have had better results with morphine and veratrum in connection with pilocarpine than by any other remedies. Of course other remedies come in later on.

As to the treatment with alcohol, it is something new to me. I have never used it. I am glad to know we have got a good use for alcohol in these cases because they are troublesome to deal with. I hope it will result in great good.

Dr. L. G. Hardman of Harmony Grove: I would like to make a few remarks on the paper of Dr. Noble. I am especially glad to find Dr. Noble has started in this line in the use of alcohol. It occurs to me that alcohol is one of the peculiar agents that might turn out to be of special benefit to us in our practice. In the first place, Dr. Noble stated that he was not aware that alcohol was an antiseptic of any great power. I would call the attention of the profession to this fact, that it is generally known or believed we have remedies known as antitoxins. Now, alcohol is certainly an anti-fermentative agent, if not a powerful antiseptic. Alcohol is one of the agents that in one sense produces the death of its own mother. Alcohol, after a certain stage of fermentation, destroys the germ that produces it, and possibly it is the ptomaine of the germ. For instance, alcoholic fermentation, after it has advanced to a certain stage, or has produced a certain per cent. of alcohol, arrests fermentation, or rather the fermentative process stops. The germ or fermentative agent is killed by the presence of the alcohol. Therefore, it seems to me that it represents two things. In the first place, it is an anti-fermentative agent, and as sepsis is a process of fermentation, of course it establishes the fact that it must be an antiseptic; and further, that it does illustrate the fact that in certain conditions and in certain fluids we do have agents produced by the germs themselves, and this may be a ptomaine or an antitoxin which is produced by the germ which arrests its own process; and it occurs to me that that may explain to some extent the self-limitation of zymotic, specific, or contagious diseases, such as scarlet fever, measles, small-

pox, etc. When this process of fermentation has gone on to a certain stage, when the germ has produced enough of the anti-fermentative agent of antitoxin, the process is arrested. If alcohol will destroy its own mother, the germ that produces it, it occurs to me that it will prove of great value in arresting septic processes.

Dr. Graham of Savannah: Your remarks, Mr. President, are interesting, in that they recall the principle upon which the antitoxin theory was first elaborated—the fermentation of wine. For instance, let us take a few micro-organisms or yeast germs, which, falling into wine which contains grape-sugar, split up the grape-sugar into alcohol and carbon dioxide. When these germs have split up all the sugar that remains in the grape juice they have no longer anything to work upon and so develop a ferment which kills them, and which is alcohol. A human being, confined in a room absolutely air-tight, dies as the result of not only breathing the oxygen in the room, but as the result of rebreathing the carbon dioxide. In other words, he dies not only from loss of oxygen, but by breathing in carbon dioxide, which is the waste product from his body. Thus it is that the theory of antitoxin was first elaborated on germs which grow in any media. Now, if we can develop an antitoxin which, when introduced into the organism in sufficient quantity, will kill the germs and conserve the life of the individual, we will have accomplished our work on a purely and strictly scientific basis.

Dr. Kime (closing the discussion on his part): This is an interesting subject to me, and one to which I have devoted considerable attention for some time. As I stated in my paper, it is very essential to divide these cases of infection into two general classes if we expect to get good results from treatment. I insisted upon a division being made as to the forms of infection. Putrid infection or sapremia is entirely distinct from septic infection. We

have to deal with a case of putrid infection when we have retention of material in the uterine cavity that undergoes decomposition, and the result of that decomposition is the generation of a toxin, and the absorption of the toxin alone is the cause of the trouble. As soon as you clear out the uterine cavity or rid it of putrefying material and prevent the generation or elaboration of toxins therein, you will relieve nature of the origin and the cause of the trouble, after which the symptoms will subside rapidly or gradually, according to the amount of toxin already absorbed. In some cases the germs may migrate beyond the endometrium in putrid infection. In all cases of septic infection of sufficient severity to produce constitutional disturbance to amount to anything the germs will be found to have extended beyond the endometrium into the muscular structure of the lymphatics of the fallopian tubes in a great many instances, and develop pelvic peritonitis or general peritonitis. In those cases we need not expect to get benefit from simply washing out the uterus. I admit and advocate that where the endometrium alone is involved, where we have putrid infection confined to this area, we may get good results from alcohol, formaldehyde, or other agents. If you clear out the uterine cavity and remove the germs before they extend beyond the endometrium you will get better results. Those cases are easily relieved.

The plan of treatment recommended in my paper is not one that is entirely confined to those cases. While it is good in those cases, its beneficial results extend beyond. I have seen, time and again, where we have had structures involved beyond the endometrium, that is, the muscular structures, the fallopian tubes, pelvic cellular tissue, and even in cases of phlebitis, where this method of treatment by drainage relieved them permanently, and some of the women have become pregnant again. I have seen a case where there were deposits in the pelvic cellular tissue, with

involvement of the tubes and ovaries, a deposit as big as your two fists surrounding the uterus, rendering it immovable, the uterus measuring seven inches in depth, relieved by this method of treatment. In this case when the cervix was opened with a dilator the material would run out alongside of the bed, the woman having a pulse of 160.

As to the effect of the rubber tube as an irrigator, when you irrigate these cases and use the catheter repeatedly, it is one of the most treacherous things you have to deal with. The rubber catheter may be sterilized once or twice, when using it at different times and you do not want to get a new catheter for every patient, but the metal catheter is one of the easiest instruments you can possibly sterilize. If you locate the position of the uterus by bimanual examination and by the introduction of the catheter the first time, I claim that I can introduce a metal catheter as easily then as you can introduce a soft rubber catheter. Frequently in introducing a soft rubber catheter, if you have an anteflexion or retroversion or deformity in the position of the uterus, you will strike some enlargement and the catheter will not go to the fundus of the uterus; whereas with one of the stems I show you you can reach the fundus and effect free drainage.

Dr. Noble (closing the discussion): This subject is a very extensive one from the fact that the varieties and means of infection are so great. I did not intend to cover the whole subject; it is too large. The treatment I have outlined is not intended for indiscriminate application, and I wish to emphasize this point. Any man who resorts to any one form of treatment or is prejudiced to others, will meet with misfortune in his practice. There are cases in which I would not consider this treatment applicable, and I would try others. There are cases in which I would not resort to drainage. On the other hand, there are cases in

which drainage does good. Drainage with antisepsis and asepsis have elevated surgery to a high standard, and nobody will gainsay its value. However, I do not believe that drainage should be applied to all cases. If there is an abscess of the parenchymatous structure of the uterus and of abdominal section, and dilatation of the uterus proves it to be the only point of infection, drainage of the uterine cavity will not be of any benefit. It is necessary in such a case to open the abscess, scrape it out, and drain.

The two cases of puerperal infection illustrated here were instances of mixed infection with the streptococus pyogenes aureus and gonorrhea. The gonorrheal infection was of long standing.

I would like to state, that there is a mistaken idea abroad in the profession in regard to the relative amount of peritonitis found in puerperal cases. Almost every man imagines if he has a severe case of puerperal infection that on that account of the tenderness, soreness and temperature peritonitis is present in some form. That is a mistake. I have shown, and Dr. Cartledge of Louisville has shown, that we may have abscesses in the uterus and no peritonitis beyond an engorgement in certain parts of the serous coverings of the uterus. I wish to impress that point, as it must influence the treatment to a great extent.

TIGHT LACING—ITS RELATION TO UTERINE DEVELOPMENT AND TO DISEASES OF THE FEMALE ORGANS OF GENERATION.

By W. E. FITCH, M.D., Savannah, Ga.

"Seest thou not what a deformed thief this fashion is."

Mr. President and Gentlemen of the Georgia Medical Association:

My only excuse for bringing this subject before the members of this Association is the absolute necessity for seriously considering the subject of tight lacing as it exists to-day in all civilized countries.

The author's chief aim will be to call the attention of the profession to the evil effects of tight lacing, and have them discuss the subject and devise means of informing the laity of the serious effects of this fashion. It behooves us as physicians to lead in this reform and to help it into practical channels.

This subject is of special interest to the general practitioner as well as the gynecologist, while to the race it is of serious importance.

Convinced clearly as to the truth and firmness of this article's claim, the author feels no degree of trepidation in condemning this injurious fashion, and asks your support and influence in offering a bold protest against it.

The importance of this subject as an etiological factor in disease of the pelvic organs has been lost sight of in the mad rush for scientific research.

There is no one subject to which more importance should be given by the profession; and the author will try to faith-

fully point out in a practical manner the evil effects of tight lacing, both as a factor in the etiology of disease and as an impediment to the normal development of the uterine organs, which offers the greatest hindrance to disease, and at the same time to contrast the well developed conditions and freedom from pelvic ills in those who do not practice tight lacing with frail constitutions, barrenness and the various uterine disorders, found in those who wear the corset *tight.* I wish it understood that tight lacing is not confined only to those who wear the corset—for the clothing may be worn so tight as to do practically the same harm, though to a less degree, by gradual compression.

Tight lacing is not the only cause of maldevelopment of the uterus and accessory organs, occasioning diseased conditions; but I wish to firmly impress upon your minds that it is one of the chief factors. I will now ask you to briefly review with me the anatomy of the female pelvis, so that you may better comprehend the idea intended to be conveyed in this paper.

The bony pelvis consists of a solid unyielding structure of bones, with a false pelvis representing a truncated cone, the base looking upward and slightly flattened on its anterior; the external and internal oblique, transversalis, pyramidalis and rectus muscles, with sheaths and tendons combining, form the lateral and anterior walls of a cylinder continuous with the last named structure. The spinal column lined with quadratus lumborum muscles form the posterior wall.

Inclosed in this cylindrical body (pelvis) from diaphragm downward are the various abdominal and pelvic organs, all readily displaced by pressure; among these we find the uterus which remains undeveloped and in an infantile state until near the approach of puberty, when it develops rapidly and continues to increase in size, proportionately to

the rest of the body until the normal size is reached, which is, usually between the sixteenth and twentieth year.

The virgin uterus is about two and one-half inches long, width at about the level of the fallopian tubes nearly one and three-quarter inches, and its weight about twelve drachms. It is suspended in the pelvis by ligaments amounting to little less than folds of peritoneum. The fallopian tubes and ovaries, with feeble supports spread out on the right and left of the uterus in connection with the broad ligaments almost at right angles. The ovaries, formed from the wolffian bodies, rapidly begin to develop at the age of twelve; a new era sets in—maturation and periodical rupture of the graafian follicles; the remaining parts of the generative organs before and at puberty rapidly increase in size. At least eighty-five per cent. of girls develop their generative organs between the twelfth and sixteenth years. It must also be remembered that the uterus and appendages are covered, almost entirely by peritoneum, which is very susceptible to injury, even from very slight causes; that the construction of vessels supplying blood is of such a nature as to favor either anemia or congestion proportionate to the degree of compression exerted. The free mobility of the uterus, and the increased supply of blood the parts are receiving or should receive, enables us more clearly to understand the effects of pressure on an organ requiring rest and freedom during the period of development.

It is at this time, and more frequently earlier, that parents give their consent for the girl to commence the use of the *corset* and use their own ideas, which art not always moderate as to the degree of constriction. "Either thou art most ignorant by age or wert born a fool."—White. "Nature stood with stupid eyes and gaping mouth which testified surprise."

The corset is so constructed that when worn it exerts its greatest influence, pressure from above the brim of the pelvis downward, constricting the abdominal walls, the lower part of the thorax and pushing inward the costal cartilages, often the seventh and eighth overlapping.

The greatest constriction occurs in the immediate neighborhood of the stomach, which, when distended, as after a hearty meal, produces the "hour-glass stomach" found at times in this class of patients.

The small intestines with mesentery and colon are crowded into the pelvis. Douglas's cul-de-sac is filled with small intestines, which helps to cause anteversion of the uterus; when the rectum is loaded with feces, and when the bladder is distended, rectum empty, retroversion results, displacing the intestine into the posterior cul-de-sac.

In most cases the compression is so great as to interfere with the normal peristaltic action of the intestines, thereby producing constipation.

Compression in any part interferes with physiological functions; therefore, we arrive at the following conclusions:

1st. The normal breathing of woman is like that of man —abdominal; tight lacing changes the type to costal.(1)

2d. The pelvic organs normally make a considerable excursion with each respiration.(2) Tight lacing in the upright position checks this motion almost entirely.(3)

3d. Sitting or leaning forward lessens intra-abdominal pressure(4); tight lacing in these positions greatly increases intra-abdominal pressure.(5)

4th. The uterus is displaced downward by tight lacing

(1) Wilberforce Smith. Brit. Med. J'l, Oct. 11th, 1890.
(2) Kellogg and Mary Putman Jacobi.
(3) Dikman.
(4) Schatz, Archives of Gynecology, III., 58, IV., 1893.
(5) The Corset Question: Kellogg, N. Y. Med. J'l, Nov., 1887.

from one to two and a half inches. The pelvic floor is bulged downward and the circulation rendered sluggish.

5. Uterine development is greatest from the twelfth to sixteenth year; tight lacing is usually commenced at this the period of the beginning of uterine development.

Women when asleep breathe like men; all animals, male and female, breathe alike. Mays has shown that Indian girls breathe like men, and Kellogg has confirmed this observation among several Indian tribes, among Chinese women, agricultural women, and English pit-brow lassies and civilized women who have been loosely clothed about the waist; all show the same type of abdominal breathing; and the flimsy argument that chest-breathing is normal to woman, because it is necessary during gestation, goes to the wind, when it is shown that even in the last months of pregnancy abdominal respiratory movements predominate over the thoracic movements. The most active respiratory organ, that muscle of respiration, the diaphragm, adapts itself to circumstances, so that long-distance runners in the quiescent state have least costal breathing of all classes of men. The Egyptians, who were first in the promotion of civilization, education and art, while permitting variations in luxuries, were forbidden to introduce any new ideas or "fashions" in articles of dress tending to constrict the waist or in any way modifying the true teachings of nature.

Africans, Indians and all other nations who wear loose clothing are almost entirely free from pelvic disorders. It is in this class of women that we find the most natural and perfect pregnancy, easiest and most natural deliveries and most satisfactory puerperium.

Any physician who has practiced medicine in the rural districts for the well developed and healthy, and later in the city for the delicate, badly nourished, poorly developed,

and where tight lacing is practically universal, will be convinced that there is an explanation for the frequency of female ills in the latter as compared with the former.

There is no doubt of the fact that seventy-five per cent. of the women who habitually practice tight lacing to any considerable extent suffer from mal-development of the uterine organs, especially if the corset is worn at that period of life when uterine development is greatest.

It is clear to any thinking mind that maldevelopment conduces to diseased conditions, and practically renders physiological functions of organs incomplete and painful. Uterine displacement, that subject about which so much has been said during the past decade, and whose treatment has been so varied, that "falling of the womb," which is so prevalent in the minds of such a large number of women and a "hobby" for so many doctors, the main cause can be traced back to the *corset.*

In no other forms of mammalia other than mankind do we find uterine displacement or diseased conditions of the generative organs. Why is this?

Tight lacing produces maldevelopment and displacement of the uterine organs and appendages; thereby menstruation is affected in many ways. Amenorrhea frequently is the result of a poorly developed mucosa and its adnexa, together with faultily developed ovaries—a condition which if negleceted, often leads to atrophy; or we may have congestion with long-continued, profuse flows. Dysmenorrhea is a condition which I think is mainly due to maldevelopment of both the uterine appendages and the nervous system, also the muscular and cellular tissues, rendering them inadequate to their physiological requirements. Cancer is a rare disease with the Indians, yet occurring frequently in civilized countries, must have its explanation in some custom peculiar to such civilization.

We are all cognizant of the fact that in the uterus there-

are embryonic cells which remain through life; they are considered the cause of epithelioma of the cervix, and the cervix in ninety-eight per cent. of cases is the seat of cancer; local irritation being the chief cause or generator. Tight lacing produces this irritation by the downward pressure of the cervix against the floor of the vagina. To strengthen my arguments I quote from Heart & Barbour: "Up to puberty the mortality for carcinoma is the same, afterward the relative proportion of female to male deaths gradually rises till it attains its maximum about the age of sixty years."

Miscarriages, lacerated cervix, weak and inefficient contractions of the uterus in labor, protracted puerperium, the result of subinvolution, may often find their true explanation directly or indirectly due to maldevelopment. The increased frequency of endometritis, hyperplasia erosion, stenosis, sterility and atresia of the cervix and os, must be largely due to this cause. A large number of the para-uterine cysts, as well as papillomatous cysts of the hilum, parovarium and cysts of the broad ligaments, have their origin in these unobliterated ducts, and the remains of the wolffian bodies.

Maldevelopment is surely accountable for this condition of affairs. Fibroid and other solid tumors of the uterus have their etiology in maldevelopment of the organs of generation. This fact is borne out by Schroder and Gusserow.

The only benefit obtained in the treatment of pelvic disorders with electricity is mainly due to its efficacy as an aid to more completely develop the much-abused organs. All women who have practiced tight lacing complain of pain on removing the corset; this pain is due to the effort of the organs to assume their normal positions.

Goethe once said, "Art is art simply because it is not

nature;" this is borne out by referring to the figure of females who never wear the corset. Visitors cannot help observing the beautiful and natural figures of Venus de Medici with many other Roman and Grecian sculptures, and must be convinced that these noble matrons never practiced tight lacing.

Are civilized customs, fashions, and forms of dress more conducive to health than those of the savages? It is thought not.

"Is the savage waiting for civilization to offer him ideas and reforms in dress? or is he past it and mastering it?" (Whitman.)

DISCUSSION ON DR. FITCH'S PAPER.

Dr. W. C. Lyle of Augusta: I have listened with pleasure to the paper of Dr. Fitch. The only thing I regret is that he did not see fit to go further into the subject, not only as regards the uterus and its adnexa, but also with reference to other disorders of the human system. Of course, it might have lengthened his paper considerably, but the subject is one of so much general interest to humanity that it would have been advisable under the circumstances. I have seen disorders of the stomach, as well as displacements of this organ, due to tight lacing; also disorders of the liver, obstruction to circulation and congestion of various organs due to it.

Dr. W. Z. Holliday of Augusta: I enjoyed the paper of Dr. Fitch very much indeed, and while I have no criticisms to make, I wish to add that immediately associated with tight lacing and leading to the same train of symptoms, and being often more pernicious than tight lacing, is the habit among women of wearing heavy skirts and suspending them from the waist. This produces almost the same mechanical effect as tight lacing, in that there is more

or less interference with the act of respiration, deterring of the process of digestion, dragging down the pelvic organs, and producing a whole train of symptoms which are likewise brought about by the act of tight lacing. Fortunately this is one of the things which can be more readily remedied than to overcome the habit of tight lacing. Most women object to loosening their corset strings, but, after urging the importance of wearing a pair of suspenders, I have been able to accomplish more reformation, by inducing them to support the skirts over the shoulders.

Dr. Fitch (closing the discussion): The subject of tight lacing is too lightly considered, although it covers such a large field in the causation of diseases of the uterus and appendages, of the liver and other organs, that I thought it would make my paper too long to take up the subject of dress in this paper, and as Dr. Holliday spoke of the subject of suspension of heavy and numerous skirts from the waist, I will say that it is my intention later on to present another paper following up this line of thought on "The Ills of Modern Dressing *vs.* Hygienic Dressing."

MALARIA AS AN ETIOLOGICAL FACTOR IN ASTHENOPIA.

By J. LAWTON HIERS, M.D., Savannah, Ga.

Mr. President and Gentlemen:

In accepting the invitation of the Chairman of the Committee on Program to read a paper at the present session of the Medical Association of Georgia, I was for a time at a loss to know what subject to select, but finally concluded that it might prove of interest to report my work in asthenopia for the past two years, more particularly a form of asthenopia in which by the use of the microscope we have found the malarial plasmodia in abundance, and with an anti-malarial treatment proven malaria to be the chief etiological factor, and to discuss a few practical points connected with the trouble.

The term asthenopia like that of a few other terms in the medical vocabulary is a very convenient one, though very incomplete from a diagnostic standpoint, and expresses practically nothing as to the pathology of the affection of which the patient complains.

Lexicographers define the term as weak, painful vision—diminution in the power of vision accompanied by pain, especially when the patient attempts to use his eyes for any length of time. Most writers have recognized an anatomical or physiological abnormality as the chief cause of the trouble, hence accommodative, muscular, intraocular, or nervous asthenopia. Of the several groups, the first comprises the larger number of cases, and in most in-

stances with the proper adjustment of glasses the patient is entirely relieved. In the second group, though they are not so numerous, we find many of the worst cases of asthenopia, which I am in favor of relieving by the proper adjustment of prisms, when it is possible to do so; but when it is not I should at once advise surgical interference. I am aware of the fact that some writers hold that all cases of asthenopia are caused by either ametropia or heterophoria, but in intraocular or nervous asthenopia I desire to call your attention to malaria as one of the chief etiological factors. I do not wish to be placed in that class of physicians who make a "hobby horse" of malaria for every ailment of the human family, but it is an established fact that we have many diseases caused by malarial poisoning other than malarial fever, among them hemoglobinuria without fever, enlargement of the spleen, malarial neuralgia, motor ocular paralysis, etc.

Now with this knowledge of the effects of malaria on the liver, spleen, kidneys and nervous system, who can doubt but that it also affects the optic nerve?

In many instances it most assuredly does.

In the early part of July, 1896, I discovered my first case of malarial asthenopia, when a young lady, Miss N., of eighteen years, accompanied by her father, presented herself for treatment; family history good, physical condition rather robust, and her health otherwise apparently perfect. She reported that about the middle of the previous winter her eyes became so weak and painful that she was forced to leave college and consult a physician. From that time until she called to see me she had consulted two well-known oculists from whom she claimed to have received only temporary relief. An examination revealed a clear media, and otherwise healthy fundus. The external muscles and appendages were perfectly normal, save a very mild form of catarrhal conjunctivitis which was promptly relieved with a mild antiseptic-astringent wash—

I went over her refraction very carefully—she was able to read 20-15 with either eye with ease, but could hold it only for a few moments. After two examinations I prescribed Lens --|-. 25 D. Cly—ax 90°, which afforded her some relief, but she continued to suffer and I was forced to look for other than the usual causes of asthenopia. After watching and studying her case for several days I observed a decided periodicity in her asthenopic paroxysms, one of the chief characteristics of malaria. On questioning her further she informed me that she had never had malarial fever, but that she was raised, and had lived all of her life in a decidedly malarial district. Feeling much encouraged, yet somewhat at sea, I decided to put her on an anti-malarial treatment, and prescribed liberal doses of quinine bisulph. and arsenious acid in combination. After three days treatment with this remedy she was entirely relieved of all pain and weakness of vision, proving very clearly to my mind that malarial poisoning was the cause of her trouble. The treatment was continued for a few weeks to thoroughly eradicate the malaria from her system. She was again able to enter college the following fall and is now concluding her second term in college since my treatment of her. I have seen her several times and she informs me that she has been able to pursue her studies without the slightest indication of her former trouble.

Case second is of much more recent date than the majority of cases which I shall report, but I give it in detail on account of its peculiar interest, it being purely of a malarial origin. James E., a negro, aged twenty-eight, a native of the West Indies, though he had lived in this country about five years, occupation a hotel waiter, called to see me December 3d, 1897. He complained of intense eye pain and weakness of vision. On examination I also found him to be suffering with an acute conjunctival catarrh, which I at once concluded was the cause of his trouble. I prescribed

the usual treatment including a pair of dark glasses. By the end of the third day the conjunctival catarrh was entirely relieved, but he claimed that he could realize no improvement.

An examination of his eyes with the opthalmoscope revealed a perfectly clear media and otherwise healthy fundus. An examination of his refraction and the external muscles proved them to be in a perfectly normal condition.

An examination of his blood showed malarial plasmodia in abundance, almost every blood cell containing one or more parasites. His general condition was looked into and he was found to be in a healthy condition other than a slightly torpid liver, which was promptly relieved by a mercurial purge. At no time was I able to detect a rise in his temperature. He stated, however, that about two years previous when on a visit to the West Indies, that he had an attack of intermittent malarial fever, which lasted fourteen days. I prescribed for him large doses of quinine, arsenic and strychnia. I saw him two days afterwards when he reported some little improvement. Three days elapsed when I observed a decided improvement in his condition. The treatment was continued, and in the afternoon of the eighth day after the beginning of the anti-malarial treatment he called to see me and said he was entirely relieved, and that he experienced no difficulty in using his eyes, even in a very bright light.

To guard against a recurrence of his trouble the treatment was continued for about ten days more. I have seen him twice since and he reports that he has experienced not even the slightest difficulty in using his eyes under the most adverse circumstances.

I desire to call your attention to two forms of malarial asthenopia which I have observed, viz., acute and chronic. The acute form is seen most frequently by the family physician in the treatment of malarial fever. Almost every

physician who is familiar with malarial fever can recall the complaints of many of their patients of eye pain and weakness of vision, more particularly when subjected to a bright light. The chronic cases come more frequently under the care of the oculist, and may be associated with accommodative, or muscular asthenopia, or both.

Since July, 1896, I have treated 37 cases of astenopia, 15 males and 23 females, divided as follows, viz.: Seven males and ten females were accommodative asthenopia, being entirely relieved by the proper adjustment of glasses. Three males and six females were hypermetropic associated with malaria. They received the proper adjustment of glasses, but without entire relief until they had received the anti-malarial treatment. Six cases, four males and two females, were purely of malarial origin. One male with insufficiency of right internal rectus muscle with normal refraction, but with malarial plasmodia in abundance, was entirely relieved by large doses of quinine, arsenic and strychnia. One male with unsufficiency of left internal rectus after a thorough trial with prisms was relieved only by a tenotomy. Two cases in females were found to be due to uterine reflex and referred to their family physicians. One case of neurasthenic origin. One female presenting insufficiency of right internal rectus; hypermetropia, and malarial plasmodia in blood in abundance. She is still under observation.

Thus in the past two years I have had nine cases of hypermetropic asthenopia associated with malaria as proven by the microscope and the beneficial results obtained by the anti-malarial treatment. Six cases were beyond question of purely a malarial origin. The parasites in abundance were observed in each specimen. And the good results of the anti-malarial treatment were no less evidence of the true etiological factor in these cases.

I am indebted to my friend, Dr. Ralston Lattimore, of Savannah, for his assistance in the microscopic work.

HYSTERIA.

By A. A. DAVIDSON, M D., Augusta, Ga.

We would not apply the term ophthalmia to an inflammatory process or other pathological condition going on in the ear, in the nose or in the mouth; and very hardly were the uterus the seat of the disease, because it is readily apparent, by reason of knowledge of the derivation of the word, that when used it has reference to some condition of the eye, and yet, from the standpoint of etymology, the term, it seems, should admit of as liberal use as the other, the term "ophthalmia," from οφθαλμος, eye, as the term, "hysteria," from υστερα womb.

Ophthalmia might produce various nervous phenomena, viz.: headaches, irritability, etc., or disturbances indirectly of the functions of various organs—*e. g.*, nausea, etc. Such conditions would be denominated according to the symptoms respectively, with reference to ophthalmia only as a cause. While by the term hysteria we know all its varied and remote symptoms; and more, its like affections, in the male, whose uterus has not yet been found, nor its appendages, we name hysterics.

The above is not a criticism of the application of the term hysteria, but goes to show something of the inconsistencies of nosology, and medical terminology, and how from an etymological standpoint the word used would be misleading; for with the strictures of etymology, hysteria is not hysteria at all. But I may not offer a substitute which would better serve. The term is comprehensive in

its common accepted use; a simulation of nearly every malady or ailment to which human flesh is heir is comprehended by it. It is the mocking-bird of diseases, ape of all maladies, imitator of all ailments. Hysteria is a disease wherein the emotional is in the ascendancy over the volitional, and characterized by marked and marvelous expressions of the propensities of the idiosyncrasy of the person affected, and is not hysteria necessarily because of any abnormal condition of the uterus, but is manifestation of a morbid and incoordinate activity of brain and nerve forces, volition being subordinated, characterized by symptoms motor, sensory and sympathetic, abnormal in nature; in expression frequently simulating symptoms of various pathologic or diseased states, such as hyperesthesia, anesthesia, paralysis, convulsions, general or local suspension of functions, secretory and excretory, etc.

The causes of this condition are predisposing and immediate or exciting. Heredity stands among the first of the former; family history of phthisical, strumous or neurotic antecedents may confidently be sought; many conditions of unsatisfied nature, long mental worry and physical strain, and protracted suspense. While the poorer classes are by no means exempt, those who live in luxury and have been brought up to know no restraints, or those whose education has been ill-directed, are more susceptible. The female is most frequently affected, and at the age of young womanhood; those who *have* to live in the happy (?) state of celibacy. Unfortunate marriages and disappointing ones, continued nursing of loved ones, heterophoria and astigmatism, are all conducive to this unstable state of volition and repeated predominance of the emotional. That prostitutes are more liable to this condition than others is easily attributable to dissipation, the moral and mental environments, together with the brooding consciousness of a previous purer and happier life; and not to

any pathological condition of the genitalia. As in all nuerotic conditions of the female at the catamenial period, there may be an accentuation of the seizures that occur at this time; and though I am convinced that the seat of the disease is a morbid and incoordinately acting brain, I cannot exclude in the rare instances as predisposing as well as exciting cause some dyscrasia of the female organs of reproduction. The immediate cause may be shock to the mind or body, poignant grief, sharp disappointment, abstinence from food, the eating of food hard to digest, and mocking or imitation. This is but a partial enumeration of the causes, but it may serve to undeceive those who would attach too much significance to the derivative meaning of the term hysteria.

This is a malady characterized by symptoms just as real to the sufferer as though they were of the diseases imitated. Pain is just as poignant; and a remarkable feature of it is, that very frequently it is not amenable to the usual means of relief, anodynes being ineffectual when exhibited in large doses. Indeed, to a woman who I am sure is not addicted to its use, I have given in a single night two grains of morphine, besides four drachms of chloral and six drachms of bromide-potassium which, with several drachms of McMunn's elix. she claims to have taken, produced no sleep. These agents were administered per orem. My explanation was that there was suspension of the action of the sorbefacients, as there was indeed of the secretory glands of digestion as shown by ejected food taken a number of hours previous. I here will recur to causation to say there seems an interdependence with cause and effect of this undigested matter, but the effect (?), the hysterical phenomena are too exaggerated to be simply due to a piece of ham or other hardly digestible matter eaten, if there was no hysterical predisposition. In a number of instances where the onset was precipitated in like manner ordinary

efforts to produce emesis would fail where the emetic was given by the mouth in full doses; and only was the result desired effected by subcutaneous administration of apomorphia in decided dose; then, the inevitable nausea, with vomiting offending substance and effectual dissipation of seizure. Pain is a common symptom of hysteria, occurring most unaccountably in various localized parts of the body, and generally. Pain in the head, pain in the chest, with dyspnea in many instances. Frequently it occurs confined to the muscles or viscera of one side which are presided over by a given brain center; simulating closely the symptoms of a brain or nerve lesion. Pain may occur associated with marked contraction of the muscle. An abdominal muscle thus affected may prove for not a little while very deceptive to the casual observer; the physician will have his attention directed to the iliac region as place of a pain which shortens breath, the condition usually accompanied by distressful retching, alarming friends and physician, if he dare be unsophisticated. Examination reveals an unyielding mass which is persistent and apparently lasts for days. Authors say this condition of muscular contraction may continue unremittingly for days and weeks and months and even longer, then disappear to leave no apparent or actual effect upon the muscle at all. To me this appears rather untenable, since physiologically reasoning, a muscle in simple disuse becomes atonic and next to useless; and that a muscle in tonic contraction for any length of time would not become exhausted, not to speak of the nerve stimulus which incites this condition failing, is beyond me to conceive. The rather does it appear that this rigid state is off for seasons, the muscle returns to its normal condition. But without close watching, this tumor, when of an abdominal muscle (it may occur in the muscles of the thigh or arm), may lead to the diagnosis of an inflamed appendix or ovary, or some displaced viscus, doubt as to any of which

conditions may be eliminated by careful inquiry into the history of the case or administration of an anesthetic.

In an hysterical attack the patient may disclose to a careful observer a marked tendency to observe the first law of nature, while ostensibly appearing utterly regardless of divers pending calamities to self. In the epileptiform there is no injury to person which appears to the credulous as miraculous. In such condition a douche of cold water proves promptly efficacious. But let not these facts create within the mind of the medical observer contempt for the subject. It is as sure as can be, by personal effort, the patient cannot avert the attack, and just as true is self-control impossible without the intervention of that which stimulates to a greater exertion coordinate activity of the brain, an awakening from their lethargic state the centers of self-control, an asserting of its normal superiority of cerebrum over cerebellum. The very fact of the effect of this intervention strongly tends to make one uncharitable to the sufferer and skeptical of the existence of any suffering at all.

Sequelæ, Consequences: Hysterical attacks do tell upon the constitution. In a subject whose antecedents were sound and clear of strumous or phthisical affection, where there were recurring attacks of a sensation of constriction in the chest with marked dyspnea, knotting of some abdominal muscle, apparent suspension of respiration from ten to twenty minutes, foolish gesticulations, tossing cover and tearing gown, with remissions of symptoms from shock, cold douche, hypodermic use of apomorphia, or administration of chloroform to narcosis; the patient subsequently had hemorrhages from the lungs, became markedly reduced in flesh and physical strength. A careful examination of this patient's lungs disclosed no marked abnormal state, so I was led to the conclusion that continued tonic contraction of the circular muscular fibers of the air cells repeatedly recurring produced an exhaustion of tonicity of these fibers

and of the efferent nerve stimulus which supplies them, which was naturally followed by a determination of blood to this part, and consequently on contraction of slight cold, or on sudden shock or mental or physical worry, this determination of blood to the atonic area amounted to congestion, and breaking through the weakened covering of vesicles into air cells and spontaneous occurrence of hemorrhage. Now this condition without slightest cough or night sweats, or predisposition to tubercle, I say was a consequence of repeated hysterical attacks; so we may not ignore the dire consequences of this malady to which we may be prone to attach no significance. Another symptom which is native to the name hysteria, is false conception. Here pregnancy begins and goes to full term, morning sickness, objective symptoms and all. Fright will almost always make a marked deliverance and without the dangers attendant upon the puerperium; but woe, I am told, is the man or woman doctor who is called in to granny the case by kindness or other comforting and usual means.

There is a condition which sometimes arises in the course of true pregnancy which I may not be justified in naming as being peculiar to the hysterically disposed, but am persuaded is met with more often in such women: hydrorhea gravidarum. The one case which has come under my notice was in such a subject, in whom the sudden gushes of water would precipitate an hysterical attack.

There are spasms of the muscles accessory to respiration which bring about symptoms so common as to be characteristic of the disease under discussion, the laughing and crying so exaggerated are common, but by no means constant; the dry, sharp cough, paroxysmal or continued, is rightly called the hysterical cough. It is sometimes continued for days except when subject is asleep or conscious of being alone for any length of time.

General muscular spasms are common in women subject

to hysteria; less so in boys, rarely in men. A comatose state is not infrequently met with in them. These seizures may be epileptiform or tetanoid; the sufferer falls without warning (?) as a true epileptic, but falls markedly softer and is suspiciously selective of locality and conditions, rarely being hurt; sometimes there is a shriek in falling, then rigidity of body with foaming or slobbering at the mouth; it is unusual for the tongue to be bitten in the attack, the patient goes off into tonic convulsions, opisthotonos being marked, a state of coma apparently or really supervenes (though certain remarks or actions of bystanders may serve to dissipate the spell); the attack may last for many minutes, passing off with or without return to acknowledged consciousness, only to be repeated, to the great alarm of neighbors and friends.

The visceral symptoms are many and misleading; the most distressing of these is the suspension of any function of the alimentary tract, seemingly whatever; no appetite, bowels not responding to cathartics, urine persistently not passing. This condition continuing for days with pulse and respiration normal, no rise in temperature, no symptoms of real uremia, no apparent ill-effect whatever of consequence. Coming out after many days of this hysterical state, the normal functions are resumed as regularly as ever formerly. But there comes sequelæ to these repeated symptoms of the hysterical state.

Now a few words as to mental manifestations: the intelligence may appear good and is, but fixedness of purpose without continued stimulus, careful forethought, habit of systematizing, power of concentrating the mind on a given subject for any great while (save *sui mal*), and sound judgment are rarely met with. Self-reasoning is in abeyance when listening to the pathetic, plausible story; the mind is swayed easily and unbidden and seasonable tears will flow, while burst of laughter uncontrollable will greet a

solemn statement or sad revelation; but worse than these few symptoms is a lamentable tendency to lack in integrity with special reference to deceit; the subject in an almost irresponsible manner permits herself caught in a pointblank falsehood.

As to diagnosis being treated under a separate head, a recapitulation of the symptoms given with the relating of similar symptoms to those which occur in numberless other diseases which we might find hesitancy in eliminating in seeking to diagnose a given case, becomes necessary. Suffice it to say that a careful inquiry into the heredity and history of the patient, previous life and present environments, circumstances or conditions, will go far towards deciding, having a care not too quickly to dismiss from the mind any apprehension of a more serious condition. Physicians, as a rule, are prone to skepticism, and much dealing with hysterical patients is hardly calculated to lead one from the tendency to give little credence to the multitude of womanish complaints.

An hysterical patient, by reason of her hysteria, does not become immune from the disease her symptoms have been simulating.

Prognosis.—In a given case, however grave the symptoms may appear, if it is, in the physician's mind, clearly defined hysterical, the prognosis is entirely favorable for the given attack; but sequelæ are not wanting where attacks are recurring—the actual may supervene the feigned. The muscle which is maintained (?) in a state of original contraction loses tone, and the supply of nerve stimulus entailed to keep up this condition, as in strabismus, demanding complementary activity from its particular center, is likely to set up various and serious neurotic phenomena hardly to be defined as hysteria. The repeated interference of normal functions of the alimentary tract with its complement of glands, which in a given single attack leaves no

discernible effect, will surely tell upon digestion and assimulation, and consequently on nutrition. Chorea is not infrequently met with in persons subject to hysteria.

Treatment of hysteria is that part of the thesis which I may not enlarge upon; the thing of first importance is having the confidence of the patient, confidence that his or her symptoms have been carefully sought out and weighed, that the promise of complete recovery that may be held out is the result of this careful study of the case, else little can be effected. In seeking the mode of management of this disorder we look away from drugs except in case of complicating intercurrent diseases; this is the rule and principle, but there arise conditions at times which must be met by the energetic use of active medicinal agents. I use the term "must" not in its absolute sense, but because of the sometimes peculiar situation of physician and patient. One cannot in every instance douse a pail of ice water in the face of the patient if convulsions be present though they be hysterical. The patient is a lady of social standing, of integrity, and of delicate constitution; what's to be done? Power of moral suasion is not applicable by reason of the patient's being in a semi-comatose if not comatose (?) state, and *will* not be thus reached. Eminent writers would eschew such antispasmodics as bromides or chloral. Experience leads me to the conclusion that where sleep can be induced and maintained for some hours a great advantage is gained. This can be effected by using chloroform to unset the paroxysm, continuing the sleep by use of chloral per rectum. The subject wants to be taking medicine, so reconstructives, tonics, etc., may very well be administered, since states of malnutrition, debility and anemia are favorable to the development and aggravation of hysterical symptoms. A plan of treatment pertinently given here is that adopted by Dr. Weir Mitchell, of Philadelphia, introduced into this country by Dr. Playfair,

which is complete isolation of patient and maintenance in bed, milk given in increasing quantities. Massage being used in lieu of exercise; brilliant results having thus been obtained; however, the plan is rarely practicable. If it be impossible to place the patient among non-apprehensive and unsympathetic attendants, for patient's sake and theirs, the family or immediately interested should be acquainted with true condition and educated to deal intelligently with hysterical attacks and phases. Parents should know what their impressionable children read. Unlimited open air exercise should be encouraged. The mind should be engaged and kept off the imagined condition of self. The cardinal motive in treatment should be to so environ the subject as to call forth no expressions of an emotional nature, but rather conduce to exercise of reason and will. Eye strain from errors of refraction or unaccommodated muscles should be corrected. Any physical or psychical cause should be removed if possible.

DISCUSSION ON DR. DAVIDSON'S PAPER.

Dr. Elliott of Savannah: The paper of Dr. Davidson is a very interesting one to me. He speaks of apomorphia in the treatment of cases of hysteria, and in well-selected cases I think we obtain better results with it in breaking up paroxysms than anything I know of. There are cases, however, that would not be benefited by it, such as very anemic patients. They do not bear it so well. But plethoric patients, in well-selected cases, are relieved by apormorphia. In the cases in which I have used it prompt relief has followed.

Dr. Davidson (closing the discussion): I thank Dr. Elliott for what he has said. I have nothing further to say, except with reference to what he has said; I use apomorphia hypodermically because I have not been able to get any effect whatever from any drug administered per orem during the seizure.

CONSTITUTION AND BY-LAWS

OF THE

Medical Association of Georgia.

CONSTITUTION.

ARTICLE I.

Name.

Section 1. The name of this Association shall be "The Medical Association of Georgia."

Objects.

Sec. 2. The objects of this Association shall be to organize the medical profession of the State in the most efficient manner possible; to encourage a high standard of professional qualifications and ethics, and to promote professional brotherhood.

ARTICLE II.

Members.

Section 1. Any white physician, who resides within the limits of the State, who is a graduate of a regular Medical College in good standing, and who adopts and conforms to the Code of Ethics of the American Medical Association, shall be eligible to membership in this body.

ARTICLE III.

Officers.

Section 1. The officers of this Association shall consist of one President, two Vice-Presidents, one Secretary, one Treasurer, five Censors.

Sec. 2. The President and Vice-Presidents shall be elected for one year; the Secretary and Treasurer each for five years; each officer shall continue in office until his successor is elected and installed.

Sec. 3. Members of the Board of Censors shall be elected for a term of five years. There shall be an annual election of one member. Vacancies occurring from other causes shall be filled for the unexpired term.

ARTICLE IV.

President.

Section 1. The President shall be the chief executive officer of the Association. He shall preside at all the meetings of this body, preserve order, and perform such other duties as parliamentary usages impose on presiding officers.

Sec. 2. He shall appoint the requisite number of delegates to the American Medical Association, and to such other scientific bodies as may be desirable.

Sec. 3. The President shall be *ex officio* member of all annual committees.

Sec. 4. He shall, in the intervals between the annual sessions, direct and control the general policy and business of the Association, with careful attention to its constitutional provisions.

Sec. 5. He shall appoint all annual committees, except Committee on New Members; he appoints only the Chairman of this committee (Art. V., Sec. 7, By-Laws); also an Auditing Committee, consisting of three members, whose

duty it shall be to investigate and audit the books and accounts of the Secretary and Treasurer, and report their findings to the meeting.

ARTICLE V.

Vice-Presidents.

Section 1. Vice-Presidents, in their order, shall, in case of the absence or the death of the President, discharge all the duties belonging to the presidental office.

ARTICLE VI.

Secretary.

Section 1. The Secretary shall have charge of all the books, papers and records of the Association, except those belonging to the office of Treasurer, and shall record the minutes of the Association at all its meetings. He shall be *ex officio* member of the Publishing Committee.

Sec. 2. He shall, by February 1st, send a notice to each member, of the time and place of ensuing meeting, requesting his interest and his personal efforts in securing a large attendance, and requesting each member to send the title of his paper to the Chairman of the Program Committee.

Sec. 3. He shall keep the roll of the members of this body who have retained their membership by compliance with the provisions of this Constitution, and also the names of those who have forfeited membership, together with the cause of such forfeiture.

Sec. 4. In the absence of the Treasurer he shall collect the usual dues of the members in attendance at the regular session.

Sec. 5. The necessary expense incurred by the Secretary

in attending the annual sessions shall be defrayed out of the funds of the Association.

Sec. 6. He shall furnish a balance sheet at each annual meeting to be published in the Transactions. This shall consist of an itemized statement of all accounts made, and all moneys received and disbursed by him.

Sec. 7. The Secretary shall provide and keep upon his desk, during each meeting, a copy of the "Rules of Order" provided for by the By-Laws.

ARTICLE VII.

Treasurer.

Section 1. The Treasurer shall collect the annual dues and have custody of all the moneys belonging to the Association, and pay the vouchers of the Secretary when approved by the President.

Sec. 2. He shall at each annual meeting furnish a balance sheet for the past fiscal year to be published in the Transactions. This shall consist of an itemized statement of all financial transactions of the past year, all accounts made, all moneys received and from whom, and all moneys disbursed, to whom and for what purposes, with vouchers attached. (A fiscal year includes the period of time between the first day of one annual meeting and the first day of the next.)

Sec. 3. The necessary expense incurred by the Treasurer in attending the annual sessions shall be paid out of the funds of the Association.

ARTICLE VIII.

Censors.

Section 1. The Board of Censors shall hold annual meetings concurrently with the annual sessions of the Associa-

tion, to whom shall be referred all applications for membership, with vouchers from two members; and in such cases their decision shall be reported to the body for action. Three of their number shall constitute a quorum for business, and the Chairman and Secretary shall be designated by the President.

Sec. 2. They shall at all times, in the interval between, as well as during the meetings, take cognizance of all offenses against the Association or its members, or violation of the Code of Ethics (and prefer charges against the offenders). They are authorized to summon before them such members and witnesses as they may deem necessary. They shall have the power of reproving members for cause, without reporting their action to the Association. Or they may report any member to the Association for reprimand, suspension (for a definite time) or expulsion. They shall report the names of the individuals, and the offense for which action has been taken, immediately to the Association for action, at which time, or at the next succeeding meeting, such individuals may have the right to appeal to that body. Charges brought against a member or members of this Association, otherwise than by the Board of Censors, must be preferred in writing and signed by a member of this Association.

Sec. 3. The President of the Association, or the Chairman of the Board of Censors, may call the Board together at any time between the meetings, for the investigation of any offense on the part of any member or members, of sufficient importance to necessitate such action. The Board of Censors shall at all times have the power embodied in Art. VIII., Sec. 2.

Sec. 4. The President and Board of Censors shall constitute a tribunal with the power to suspend any officer for cause.

ARTICLE IX.

Finances.

Section 1. Every member of the Association shall pay annually into the Treasury such sum as the Association may determine, which amount, it is expected, will be paid during the session of the body.

ARTICLE X.

Constitution.

Section 1. The Constitution shall take immediate effect from its adoption.

Sec. 2. The By-Laws now in operation, and Order of Business, are adopted, so far as they agree with this Constitution.

ARTICLE XI.

Annual Meeting.

Section 1. The annual meetings shall take place on the third Wednesday in April, and at such place as shall be designated by the majority of the Association.

ARTICLE XII.

Amendments.

Section 1. Any amendment that may be offered to the Constitution shall lie over until the next annual meeting; and for its adoption at such meeting shall require a two-thirds vote of all present and voting.

BY-LAWS.

ARTICLE I.

Order of Business.

Section 1. Meeting of the Association at an hour appointed by the Program Committee.

Sec. 2. Report of the Annual Committees; (1) Committee on Arrangements; (2) Committee on Program; (3) Committee on Publication; (4) Committee on Necrology; (5) Committee on New Members; (6) Committee on Medical Legislation.

Sec. 3. Report of Special Committees.

Sec. 4. Report of Secretary.

Sec. 5. Report of Treasurer.

Sec. 6. Appointment of Auditing Committee, who shall report on or before morning of third day.

Sec. 7. Election of officers.

Sec. 8. Selection of place for next annual meeting.

Sec. 9. New business.

Sec. 10. Unfinished business.

Sec. 11. Installation of new officers.

ARTICLE II.

Election of Officers.

Section 1. The officers of the Association shall be elected by ballot, without a nomination, at one o'clock p. m., on the last day of the Association, and if there is no election on the first ballot, the three names receiving the highest number of ballots shall be voted on, the other names being

dropped. If there is no election on second ballot, the two names receiving the highest number of ballots shall be voted on until an election occurs.

ARTICLE III.

Selection of Place of Meeting.

Section 1. Selection of place for next annual meeting shall occur immediately after the election of officers.

ARTICLE IV.

Officers.

Section 1. All officers of this Association shall enter upon their duties at the time of their election.

ARTICLE V.

Committees.

Section 1. Each committee, except the Committee on New Members (see Art. V., Sec. 7, By-Laws) and their Chairman, shall be appointed by the President.

Sec. 2. There shall be six Annual Committees, as follows:

Sec. 3. The Committee of Arrangements shall consist of five members, residents of the place selected for the ensuing meeting. They shall provide suitable accommodations for the meetings of the Association, space for medical and surgical exhibits, and make such other local arrangements as they may deem essential for the success of the meeting.

Sec. 4. The Committee on Publication shall consist of five members in addition to the President and Secretary *(ex officio)*. They shall provide for the publication of the

minutes of the session, together with such papers as are deemed worthy. They shall also append to each volume of Transactions a copy of the Constitution and By-Laws of the Association, and Roll of Membership. They shall also be governed by Article VIII., By-Laws.

Sec. 5. The Committee on Necrology shall consist of five members, whose duty it shall be to procure short memorials of deceased members, and present them for publication in the Transactions.

Sec. 6. The Committee on Program shall consist of five members. They shall, on February 1st, issue a circular letter to each member of this Association, and such other regular physicians as they may deem proper, requesting them to read a paper at the ensuing meeting, the title of which should be sent to the Chairman of this Committee before March 1st. On March 10th they shall issue and mail to each member a preliminary program. Ten days before the meeting, they shall issue and mail to each member the final program. This program shall contain the titles of all papers to be read, the order of business, entertainments, etc., as agreed upon by the Committee of Arrangements and this committee, information in regard to hotel and railroad rates, amendments to Constitution and By-Laws, and such other information as may suggest itself to this committee as being of value to the members of the Association.

Sec. 7. Committee on New Members shall consist of a Chairman appointed by the President, and one other member from each county in the State, who shall be appointed by the Chairman. The duties of this committee shall be to make as complete a directory of the regular physicians in this State as possible, and at such times as they deem best to issue a circular letter to these physicians, requesting them to become members of this Association and attend its meetings. Each member of this committee will send to

the Chairman as accurate and complete a list of the regular physicians residing in his own and adjoining counties, as possible.

Sec. 8. The Committee on Legislation shall consist of nine members appointed by the President for a term of three years. There shall be an annual appointment of three members. Vacancies occurring from other causes shall be filled for the unexpired term. This committee shall organize sub-committees in each county, whose duty it shall be to assist in the framing and passage of such laws as may be desired, and in the enforcement of them in their respective counties afterward. It shall be the duty of the committee to prevent the repeal of such salutary medical laws as are now in effect; to frame and assist in the passage of such medical legislation as may be deemed necessary and beneficial, and to take proper steps to discover, report and prosecute all violations of existing medical laws. It shall be the duty of the main committee to meet in Atlanta during the sessions of the Legislature or at such other times as is deemed best to carry out its purposes. (The attention of this committee is called to the following: To suggest a feasible plan for the introduction into court of expert medical testimony in criminal cases. To suggest a feasible plan for the prevention and spread of tuberculosis.)

Sec. 9. The Auditing Committee shall consist of three members appointed by the President on the morning of the first day of the meeting. They shall examine, verify and audit the books and accounts of the various officers, and report their findings to the meeting on or before the morning of the third day.

ARTICLE VI.

Membership.

Section 1. Any member, for old age, length of service, or other good reasons, can, upon the recommendation of

the Board of Censors, be elected to an honorary membership without dues; otherwise they shall be governed by the rules applying to active members.

Sec. 2. The names of all applicants for membership, whose application is endorsed by two members of this Association, and accompanied by the initiation fee, shall first be presented to the Association through the Secretary and then referred to the Board of Censors, who shall report their action to the meeting for adoption.

Sec. 3. Any physician qualifying under Article II., Section 1, of the Constitution, whose application is vouched for by two members of this Association and accompanied by the initiation fee, may, on the discretion of the President, be accepted before Association convenes, as a temporary member. Such membership can be made regular only by the action of the Association as provided for in Article VI., Section 2, of the By-Laws.

ARTICLE VII.

Finance.

Section 1. Each member on admission shall pay an initiation fee of five dollars, which shall include his dues for the first year.

Sec. 2. Each member shall pay in advance the sum of three dollars annually thereafter.

Sec. 3. All members who have neglected to pay their dues for two years shall be reported to the Board of Censors, by the Treasurer. The Board of Censors shall have the power to forfeit the membership of such delinquents. The Treasurer will notify the members of the action of said Board and the state of their account.

Sec. 4. No physician who is in any way indebted to the Association will be eligible to membership until such indebtedness is canceled.

Sec. 5. No member shall receive a copy of the Transactions until his fees are paid in full.

ARTICLE VIII.

Papers.

Section 1. The titles of all papers to be read at any annual meeting shall be furnished the Chairman of the Program Committee thirty days before the meeting.

Sec. 2. Not more than twenty minutes shall be occupied in reading any paper. No speaker shall be allowed to speak a second time on the same subject, nor consume more than five minutes in the discussion.

Sec. 3. No paper shall occupy over twenty pages of the Transactions.

Sec. 4. The Publication Committee shall decline to publish any paper not handed to the Secretary complete before the final adjournment of the annual meeting.

Sec. 5. No paper shall be read before the Association that has already been published, or that has been read before any other body.

Sec. 6. A member presenting a paper must be present at the meeting in order to have it published in the Transactions.

ARTICLE IX.

Quorum.

Section 1. The members present shall constitute a quorum for all business excepting the admission of new members or acting upon amendments to the Constitution and By-Laws, when not less than twenty-five members must be in attendance.

ARTICLE X.

Decorum.

Section 1. No remarks reflecting upon the personal or professional character of any member shall be in order at any meeting, except when introduced by the Board of Censors.

ARTICLE XI.

Stenographer.

Section 1. The Association each year shall appoint an official stenographer.

ARTICLE XII.

Rules.

"Roberts' Rules of Order" shall be accepted as a parliamentary guide in the deliberations of the Association.

ROLL OF MEMBERS

OF THE

Medical Association of Georgia.

1898.

ARRANGED ALPHABETICALLY.

ABBREVIATIONS—P., President; V.-P., Vice-President; S., Secretary; C. S., Corresponding Secretary; T., Treasurer; O., Orator; C., Censor; indicating the offices the members hold or have held.

Members are particularly requested to notify the Secretary promptly on making any changes in their post-offices.

The Secretary will esteem it a favor if any member will write him at once on noticing any inaccuracy or omission in the roll.

Name.	Post-office.	County.	Admitted.
Adair, W. J.	Rockmart	Polk	1897
Adair, R. E.	Taylorsville	Bartow	1897
Adams, Wm. E.	Greensboro	Greene	1891
Aiken, W. F.	Savannah	Chatham	1895
Alexander, G. L.	Forsyth	Monroe	1894
Allen, H. D.	Milledgeville	Baldwin	1891
Allen, Joseph Eve	Augusta	Richmond	1895
Amason, C. T.	Nielly	Telfair	1897
Amster, L.	Atlanta	Fulton	1894
Anderson, Newt	Eudora	Jasper	1894
Anthony, E. R. (V.-P.)	Griffin	Spalding	1887
Avant, A. L. R.	Patterson	Pierce	1895
Avary, Arch	Atlanta	Fulton	1887
Avary, J. C.	Atlanta	Fulton	1889
Bacon, W. W.	Albany	Dougherty	1890
Bailey, J. W.	Gainesville	Hall	1861
Baird, Jas. B. (S., O.)	Atlanta	Fulton	1872
Baker, E. L.	Dublin	Laurens	1897
Baldwin, M. A.	Cuthbert	Randolph	1890

Name.	Post-office.	County.	Admitted.
Barnum, R. E. L.	Richland	Stewart	1892
Barón, R. B. (v.-p.)	Macon	Bibb	1884
Battey, H. H.	Rome	Floyd	1882
Battey, W. W.	Augusta	Richmond	1896
Bedingfield, S. T.	Union	Stewart	1894
Bell A. K.	Madison	Morgan	1889
Belt, L. J.	Millen	Screven	1888
Benedict, S. C. (o.)	Athens	Clarke	188?
Benson, Chas. F	Atlanta	Fulton	1897
Bingham, Wm. R.	Dublin	Laurens	1898
Binion, W. W.	Benevolence	Randolph	1898
Bivins, T. F.	Vienna	Dooly	1897
Bizzell, B. W.	Atlanta	Fulton	1894
Black, A. H.	Thomaston	Upson	1893
Blain, Arthur C.	Macon	Bibb	1890
Blalock, W. J.	Atlanta	Fulton	1894
Blanton, G. W.	Brunswick	Glynn	1893
Bloomfield, Jas. C	Athens	Clarke	1890
Bowers, F. S.	Atlanta	Fulton	1897
Boyd, A. F.	Savannah	Chatham	1891
Boyd, Edward	Atlanta	Fulton	1897
Bozeman, E. K.	Forsyth	Monroe	1892
Brasselton, B F.	Pendergrass	Jackson	1898
Bozett, A. S.	Friendship	Sumter	1897
Bryan, J. A.	Pendergrass	Jackson	1898
Bridges, B. L.	Ellaville	Schley	1897
Brigham, J. C.	Girard	Burke	1891
Brown, H. A.	Fort Valley	Houston	1891
Brown, M. S.	Fort Valley	Houston	1894
Bruce, W. W.	Thomasville	Thomas	1881
Bryan, J. A.	Gillsville	Hall	1894
Bryans, R. G.	Jackson	Henry	1890
Bryant, W. J.	Summerville	Chattooga	1892
Buford, O. H.	Cartersville	Bartow	1891
Bullard, W. M.	Monticello	Jasper	1897
Bullard, J. H.	Machen	Jasper	1897
Burdett, J. R.	Tennille	Washington	1889
Burford, H.	Brunswick	Glynn	1888
Burford, R. E. L.	Brunswick	Glynn	1890
Burns, J. K.	Clarkesville	Habersham	1897
Burt, A. Moody	Macon	Bibb	1896
Bush, E. B.	Colquitt	Miller	1895
Bush, O. B.	Colquitt	Miller	1897
Butler, P. M	Atlanta	Fulton	1894

Name.	Post-office.	County.	Admitted.
Butts, R. M.	Gordon	Wilkinson	1892
Caldwell, Frank H	Waycross	Ware	1898
Calhoun, A. T	Cartersville	Bartow	1894
Calhoun, A. W. (V.-P., C., P.)	Atlanta	Fulton	1874
Callaway, Enoch	LaGrange	Troup	1895
Callaway, J. A	Milledgeville	Baldwin	1882
Campbell, J. L	Atlanta	Fulton	1894
Carson, M. F.	Griffin	Spalding	1897
Carter, W. D	Winterville	Clarke	1898
Carswell, N. T	Irwinton	Wilkinson	1897
Cato, F. L	DeSoto	Sumter	1893
Cato, R. E	Americus	Sumter	1893
Champion, W. L	Atlanta	Fulton	1894
Chapman, Geo. L	Dublin	Laurens	1897
Chappell, Guy	Bronwood	Terrell	1897
Christian, J. M	Washington	Wilkes	1898
Chason, J. D	Iron City	Decatur	1895
Chason, Thomas	Donaldsonville	Decatur	1895
Cheatham, W. B	Dawson	Terrell	1880
Childs, J. A	Atlanta	Fulton	1894
Clark, B. J	Barnesville	Pike	1896
Clark, M. A	Macon	Bibb	1893
Clark, P. S	Darien	McIntosh	1890
Coile, F. W	Winterville	Oglethorpe	1897
Coile, J. G	Monticello	Jasper	1897
Cole, J. F	Carrollton	Carroll	1884
Coleman, Thos. D	Augusta	Richmond	1891
Coleman, J. D	Henderson	Houston	1897
Collins, Katherine R	Atlanta	Fulton	1894
Comas, P. H	Baxley	Appling	1889
Connelly, E. L. (C.)	Atlanta	Fulton	1860
Cooper, Hunter P	Atlanta	Fulton	1894
Corson, E. R	Savannah	Chatham	1895
Corbin, M. X	Savannah	Chatham	1898
Cordle, Frank	Trion Factory	Chattooga	1898
Cortelyou, P. R. (V.-P.)	Marietta	Cobb	1887
Cosby, F. L	Box Spring	Talbot	1897
Cotter, R. O	Macon	Bibb	1882
Coursey, W. D	Vidalia	Montgomery	1894
Cox, R. P	Rome	Floyd	1891
Cox, W. J	Barnesville	Pike	1894
Crawford, A. H	Abbeville	Wilcox	1893
Crawford, J. M	Atlanta	Fulton	1888
Cranford, O. G	Sasser	Terrell	1898

Name.	Post-office.	County.	Admitted
Crowley, J. G	Milledgeville	Baldwin	1893
Crowe, W. A.	Atlanta	Fulton	1892
Crozier, J. H	Cedar Springs	Early	1889
Culpepper, W. F	Senoia	Coweta	1892
Currie, M. L	Ailey	Montgomery	1890
Crumley, W. F	Oglethorpe	Macon	1892
Danforth, A. R	Atlanta	Fulton	1894
Daniel, J. W	Glenville	Tattnal	1898
Daniel, Jno. W	Savannah	Chatham	1898
Darby, J. I	Americus	Sumter	1893
Davidson, A. A	Augusta	Richmond	1896
Davidson, A. C	Sharon	Taliaferro	1887
Davis, E. C	Atlanta	Fulton	1894
Davis, Jeff	Toccoa	Habersham	1893
Davis, T. B	Newnan	Coweta	1892
Davis, Wm. L	Albany	Dougherty	1893
Deadwyler, O. L	Carlton	Madison	1898
Dean, J. G	Dawson	Terrell	1889
Dean, W. L	Woodstock	Cherokee	1894
Denson, E. J	Allenton	Wilkinson	1897
Divine, K. C	Atlanta	Fulton	1882
Doster, B. R. (v.-p.)	Blakely	Early	1873
Doster, B. R., Jr	Blakely	Early	1896
Doughty, Henry Campbell	Augusta	Richmond	1896
Doughty, Wm. H. (c.)	Augusta	Richmond	1857
Doughty, Wm. H., Jr. (v.-p.)	Augusta	Richmond	1880
Douglass, J. E	Cuthbert	Randolph	1889
Douglass, J. B	Talbotton	Talbot	1897
Dozier, R. T	Sasser	Terrell	1893
Drake, C. M	Atlanta	Fulton	1897
Drewry, T. E	Griffin	Spalding	1892
Drewry, N. B	Griffin	Spalding	1897
Dudley, M. J	Sonoraville	Gordon	1880
Dugas, Geo. C	Augusta	Richmond	1880
Duggan, J. H	Stephensville	Wilkinson	1884
Duncan, J. W	Atlanta	Fulton	1883
Duncan, Wm	Savannah	Chatham	1868
Dunwoody, J. A. (v.-p.)	Brunswick	Glynn	1888
DuPree, O. S	Danville	Twiggs	1897
Earnest, J. G	Atlanta	Fulton	1882
Eberhardt, B. F	Gillsville	Hall	1898
Eberhardt, J. W	Hartwell	Hart	1897
Edenfield, W. N	Pinehurst	Dooly	1897
Elkin, W. S	Atlanta	Fulton	1882

Name.	Post-office.	County.	Admitted.
Elliott, W. H. (P.)	Savannah	Chatham	1884
Ellis, S. T.	Riner	Johnson	1896
Evans, J. H	Davisborough	Washington	1897
Eve, Robert C	Augusta	Richmond	1894
Farmer, J. L	Millen	Screven	1897
Felder, L. A	Atlanta	Fulton	1894
Field, J. C	Oglethorpe	Macon	1889
Fitch, W. E	Savannah	Chatham	1898
Fitts, W. L	Carrollton	Carroll	1890
Fitts, P. W	Mountville	Troup	1897
Folks, G. P	Waycross	Ware	1890
Ford, DeSaus're (V.-P., C., P.)	Augusta	Richmond	1857
Fort, R. W	Atlanta	Fulton	1896
Foster, Eugene (V.-P., C., P.)	Augusta	Richmond	1875
Frederick, H. F	Govania	Houston	1897
Fulcher, M. O	Waynesboro	Burke	1895
Gann, Wm. F	Columbus	Muscogee	1891
Garland, J. T	Hillsboro	Jasper	1889
Garlington, T. R	Rome	Floyd	1893
Gaston, J. McF	Atlanta	Fulton	1884
Gaston, J. McF., Jr	Atlanta	Fulton	1894
Gaulden, Samuel S	Quitman	Brooks	1892
Gerdine, John (C., V.-P.)	Athens	Clarke	1882
Gheesling, J. H	Greensboro	Greene	1891
Gill, H. L	Columbus	Muscogee	1894
Gillespie, J. W	Albany	Dougherty	1897
Gilmer, Wm. B	Macon	Bibb	1893
Goethe, J. E	Blackshear	Pierce	1897
Goldin, W. F	Draketown	Haralson	1894
Goldsmith, W. S	Atlanta	Fulton	1893
Goneke, L. C	Dawson	Terrell	1897
Goodrich, E. C. (T.)	Augusta	Richmond	1876
Googe, W. R	Abbeville	Wilcox	1892
Goolsby, R. C	Juliette	Monroe	1891
Goss, I. H	Athens	Clarke	1877
Graham, J. B	Savannah	Chatham	1898
Grandy, L. B	Atlanta	Fulton	1893
Green, C. C	Atlanta	Fulton	1887
Green, S. H	Oakdale	Fulton	1892
Greenwood, T. M	Mineral Bluff	Fannin	1894
Griffin, W. C	Cartersville	Bartow	1897
Griffith, Jas. I	Danielsville	Madison	1897
Grimes, George J	Columbus	Muscogee	1872
Guinn, J. A	Conyers	Rockdale	1896

Name.	Post-office.	County.	Admitted.
Hall, J. R.	Mize	Franklin	1898
Hamilton, C.	Rome	Floyd	1894
Hammond, J. H.	LaFayette	Walker	1898
Hammond, R. A.	Logansville	Walton	1894
Hancock, Thos. H.	Atlanta	Fulton	1896
Harbin, R. M.	Rome	Floyd	1894
Hardman, L. G. (v.-p.)	Harmony Grove	Jackson	1877
Hardman, W. B.	Harmony Grove	Jackson	1892
Hardon, Virgil O. (o.)	Atlanta	Fulton	1886
Harison, W. H., Jr.	Augusta	Richmond	1886
Harrison, E. S.	Thomson	McDuffie	1897
Harris, E. A.	Midville	Burke	1893
Harris, R. B.	Savannah	Chatham	1885
Hawkins, A. M. F.	Ball Ground	Cherokee	1891
Hawes, A. S.	Elberton	Elbert	1895
Head, J. M.	Zebulon	Pike	1883
Henderson, J. R.	Sun Hill	Washington	1884
Herman, J. D.	Eastman	Dodge	1884
Hicks, Charles (c.)	Dublin	Laurens	1884
Hiers, J. Lawton (v.-p.)	Savannah	Chatham	1895
Hill, J. J.	Washington	Wilkes	1880
Hillsman, P. L.	Albany	Dougherty	1871
Hobbs, A. G.	Atlanta	Fulton	1882
Holliday, A. C.	Athens	Clarke	
Holliday, W. Z.	Augusta	Richmond	1884
Hollis, T. B.	Bolingbroke	Monroe	1897
Holmes, J. B. S. (v.-p., p.)	Atlanta	Fulton	1872
Holt, W. F. (v.-p., p.)	Macon	Bibb	1867
Hood, J. W.	Atlanta	Fulton	1894
Hopkins, J. G. (c.)	Thomasville	Thomas	1890
Horine, George	Americus	Sumter	1893
Horrocks, J. Marion	Thomasville	Thomas	1893
Horsley, J. S.	West Point	Troup	1894
Horsley, J. S., Jr.	West Point	Troup	1896
Howell, Dan H. (s.)	Atlanta	Fulton	1878
Hubbard, T. V	Atlanta	Fulton	1896
Hudson, P. L.	Cochran	Pulaski	1896
Humphries, J. R	Acworth	Cobb	1876
Humphries, W. C.	Acworth	Cobb	1890
Hurt, Charles D. (c.)	Atlanta	Fulton	1890
Hutchins, M. B.	Atlanta	Fulton	1892
Izlar, R. P.	Waycross	Ware	1898
Jackson, Max	Macon	Bibb	1897
Jelks, E. L.	Quitman	Brooks	1896

Name.	Post-office.	County.	Admitted.
Jelks, N. P.	Hawkinsville	Pulaski	1882
Johnson, J. C	Atlanta	Fulton	1894
Johnson, James C.	Macon	Bibb	1875
Johnson, L. M	Rowland	Upson	1893
Johnson, W. A.	Rome	Floyd	1897
Joiner, B. L	Andersonville	Sumter	1897
Joiner, W. W.	Hawkinsville	Pulaski	1897
Jones, Henry A.	Milner	Screven	1898
Jones, Louis H.	Atlanta	Fulton	1890
Jones, L. M.	Milledgeville	Baldwin	1880
Jones, T. S	Jeffersonville	Twiggs	1893
Jowers, Clebe	Americus	Sumter	1897
Keaton, P. H	Damascus	Early	1889
Kelley, T. J	Tennille	Washington	1884
Kelly, J. M	Griffin	Spalding	1885
Kendrick, W. S. (o.)	Atlanta	Fulton	1874
Kenyon, O. T	Weston	Webster	1892
Kime, R. R	Atlanta	Fulton	1892
King, J. C	Newnan	Coweta	1896
Kinnebrew, E. R.	Athens	Clarke	1898
Lancaster, J. F	Forsyth	Monroe	1884
Lane, L. P	Stillmore	Emanuel	1895
Lanier, Sidney J	Savannah	Chatham	1890
Latimer, J. H., Jr		Ware	1897
Latimore, Ralston	Savannah	Chatham	1898
Lawrence, G. A.	Haddocks	Jones	1897
Lee, Walter W	Gordon	Wilkinson	1897
LeHardy, J. C. (T., V.-P)	Savannah	Chatham	1868
Lewis, F. L	Camilla	Mitchell	1897
Lockhart, V. D	Mayesville	Banks	1891
Little, Wm. J.	Macon	Bibb	1898
Love, T. D	Atlanta	Fulton	1887
Lovorn, J. L	Bowden	Carroll	1894
Lovorn, R. M	Bowden	Carroll	1896
Lyle, W. C	Augusta	Richmond	1896
McArthur, Thos. J	Unadilla	Dooly	1897
McCurry, I. L	Hartwell	Hart	1897
McDaniell, J. L	Atlanta	Fulton	1896
McDonald, C. M	Leesburg	Lee	1892
McDuffie, Jas. H	Columbus	Muscogee	1893
McHatton, H. (C., V.-P.)	Macon	Bibb	1883
McIntosh, P. A	Thomasville	Thomas	1893
McIntosh, T. M.	Thomasville	Thomas	1874

Name.	Post-office.	County.	Admitted.
McJunkin, J. M	Toccoa	Habersham	1898
McKinnon, J. K	White Oak	Camden	1895
McKown, J. A	Jonesboro	Clayton	1891
McKown, T. D	Chickamauga	Walker	1887
McLean, J. L	Birdford	Tattnal	1897
McLeod, R. D	Lyons	Montgomery	1893
McMaster, D. E	Tennille	Washington	1894
McMaster, H. B. (c.)	Waynesboro	Burke	1888
McMath, J. F	Andersonville	Sumter	1897
McRae, A. B	Seville	Wilcox	1893
McRae, F. W	Atlanta	Fulton	1887
Mack, Alexander	Hawkinsville	Pulaski	1897
Mallory, R. A	Concord	Pike	1893
Maloy, John K	Milan	Telfair	1890
Maloy, W. C	Rhine	Dodge	1893
Malone, J. D	Marietta	Cobb	1891
Manderville, J. T	Cuthbert	Randolph	1894
Mangham, J. E	Reynolds	Taylor	1897
Martin, J. D	Savannah	Chatham	1894
Mathis, A	Macon	Bibb	1872
Matthews, M. F	Nicholson	Jackson	1898
Matthews, S. M	Quitman	Brooks	1890
Mathews, W. J	Middleton	Elbert	1892
May, W. F	Savannah	Chatham	1894
Merritt, Thos. M	Calvary	Decatur	1895
Miller, G. T. (v.-p.)	Americus	Sumter	1892
Miller, R. L	Hephzibah	Richmond	1891
Mitchell, T. Emerson	Columbus	Muscogee	1896
Mobley, H. A	Byronville	Dooly	1891
Montgomery, R. O	Atlanta	Fulton	1897
Montgomery, Chas J	Augusta	Richmond	1895
Mooney, H. R	Hagan	Bryan	1891
Moore, K.P. (v.-p., p., s., o., t.)	Macon	Bibb	1871
Moore, J. M	Macon	Bibb	1897
Moreland, A. C	Forsyth	Monroe	1892
Moran, C. A	Atlanta	Fulton	1895
Morgan, J. B. (v.-p., p.)	Augusta	Richmond	1891
Moss, W. Hosea	Monroe	Walton	1897
Mountain, Geo. W	Augusta	Richmond	1898
Munro, Henry S	Americus	Sumter	1893
eal, J. W	Scotland	Telfair	1892
Nichols, D. N.	Laston	Bulloch	1891
Nicolson, Wm. Perrin	Atlanta	Fulton	1883
Niles, Geo. M	Marshallville	Macon	1893

Name.	Post office.	County.	Addmitted.
Nisbet, D. B	Eatonton	Putnam	1894
Noble, G. H. (P.)	Atlanta	Fulton	1883
Nunn, R. J. (C., V.-P., P.)	Savannah	Chatham	1867
O'Daniel, Mark H (O., C., V.-P.)	Macon	Bibb	1882
O'Daniel, William (T., P)	Bullard	Twiggs	1870
O'Daniel, W. A. (O.)	Milledgeville	Baldwin	1886
Oliver, A. S	Elberton	Elbert	1897
Olmsted, J. C	Atlanta	Fulton	1886
Owens, W. W	Savannah	Chatham	1891
Paige, John D	Savannah	Chatham	1892
Patten, W. L.	Milltown	Berrien	1895
Patterson, F. D	Cuthbert	Randolph	1892
Patterson, J. C	Milledgeville	Baldwin	1894
Parks, W. B	Atlanta	Fulton	1882
Payne, A. L	Fort Lamar	Madison	1898
Payne, George F	Atlanta	Fulton	1894
Peete, C. H.	Macon	Bibb	1893
Pendergrass, J. B	Jefferson	Jackson	1883
Peters, A. B	Moultrie	Colquitt	1897
Peterson, N	Tifton	Berrien	1897
Petrie, C. B	Athens	Clarke	1894
Philips, S. Latimer	Savannah	Chatham	1890
Pla, J. M	Atlanta	Fulton	1897
Ponder, W. P.	Forsyth	Monroe	1885
Poole, W. H	Douglasville	Douglas	1894
Powell, B. C	Villa Rica	Carroll	1896
Powell, John F	Kramer	Wilcox	1893
Powell, T. O. (P)	Milledgeville	Baldwin	1867
Prather, Wm. S	Americus	Sumter	1897
Purse, B. S	Savannah	Chatham	1895
Purse, M. A	Atlanta	Fulton	1894
Quarterman, K. A	Walthourville	Liberty	1885
Quillian, D. D	Athens	Clarke	1892
Quillian, H. P	Arp	Banks	1883
Quinn, C. T	Naylor	Lowndes	1893
Quilez, J. M	Atlanta	Fulton	1897
Read, J. B	Savannah	Chatham	1851
Redding, Chas. D	Lizella	Bibb	1897
Redding, J. H	Waycross	Ware	1893
Reid, C. W	Pelham	Mitchell	1897
Rhodes, P. M	Taylorville	Bartow	1894

Name.	Post-office.	County.	Admitted.
Richardson, C. H	Montezuma	Macon	1886
Richardson, E. H. (O., C., V.-P.)	Atlanta	Fulton	1878
Ridley, F. M. (O., C., P.)	LaGrange	Troup	1887
Ridley, R. B.	Atlanta	Fulton	1887
Ripley, E. C	Barnesville	Pike	1897
Rippard, J. C.	Waycross	Ware	1898
Roberts, J. B. (V.-P.)	Atlanta	Fulton	1875
Robinson, W. C.	Atlanta	Fulton	1897
Rogers, J. W	Reynolds	Taylor	1897
Rogers, W. T.	Coleman	Randolph	1893
Rome, W. J	Buford	Gwinnett	1897
Rose, Jno. R.	Eastman	Dodge	1897
Ross, James T	Macon	Bibb	1891
Rosser, J. P	Atlanta	Fulton	1897
Roy, Dunbar	Atlanta	Fulton	1892
Roy, G. G	Atlanta	Fulton	1878
Rudisill, B. F	Forsyth	Monroe	1897
Rumble, S.	Goggins	Monroe	1891
Saunders, Jno. W	Unadilla	Worth	1897
Scarbrough, J. F.	Tippettville	Dooly	1893
Scott, H. F. (O)	Atlanta	Fulton	1879
Selman, J. L.	Douglasville	Douglas	1894
Sessoms, W. C.	Moultrie	Colquitt	1893
Sewell, J. R	Walnut Hill	Franklin	1894
Shannon, John R.	Cabaniss	Monroe	1893
Sharpe, L. J.	Harmony Grove,	Jackson	1898
Shepard, Chas. C.	Macon	Bibb	1895
Shorter, James H.	Macon	Bibb	1893
Sibbett, W. F.	Douglas	Coffee	1890
Sims, E. H	Columbus	Muscogee	1892
Sims, F. H	Atlanta.	Fulton	1897
Simmons, A. B	Savannah	Chatham	1891
Simpson, J. R	Atlanta	Fulton	1894
Simpson, W. T.	Smithville	Lee	1892
Singleton, O. G.	Fort Valley.	Houston	1892
Slack, Henry R	LaGrange	Troup	1893
Smiley, J. M	Atlanta	Fulton	1897
Smith, A. A. (V.-P., P.)	Hawkinsville	Pulaski	1875
Smith, B. F	Elberton	Elbert	1893
Smith, C. D	Atlanta	Fulton	1894
Smith, C. H.	Ellaville	Schley	1893
Smith, S. J.	Jefferson	Jackson	1897
Smith, K. A			

Name.	Post-office.	County.	Admitted
Sorrells, R. P	Danielsville	Madison	1887
Spears, W. T	Rutledge	Morgan	1894
Spence, J. M., Jr	Waresboro	Ware	1890
Spence, T. N. B.	Social Circle	Walton	1897
Standifer, W. B	Blakely	Early	1886
Stapler, M. M.	Macon	Bibb	1897
Stapleton, John L	Bronwood	Terrell	1897
Stevens, L. P	Atlanta	Fulton	1888
Stevens, V. P.	Putnam	Marion	1892
Stewart, J. F.	Griffin	Spalding	1892
Stewart, W. W	Columbus	Muscogee	1892
Stirling, A. W	Atlanta	Fulton	1896
Stockard, C. C	Atlanta	Fulton	1896
Stone, George H	Savannah	Chatham	1875
Story, J. W	Dennard	Houston	1897
Story, Warren L	Sycamore	Irwin	1897
Stovall, C. T	Vienna	Dooly	1897
Stovall, A. S. J	Elberton	Elbert	1886
Stubbs, Geo. H	Lithia Springs	Douglas	1897
Sullivan, J. S.	Macon	Bibb	1893
Summey, Chas. L	Stone Mountain	DeKalb	1897
Taliaferro, V. H.	Atlanta	Fulton	1894
Tankersley, J. S.	Ellijay	Gilmer	1894
Tarver, F. E	Augusta	Richmond	1891
Tate, William B. (v.-p.)	Tate	Pickens	1890
Taylor, A. P	Thomasville	Thomas	1873
Taylor, R. H. (v.-p, s.)	Griffin	Spalding	1879
Terrell, W. W	Douglas	Terrell	1897
Terrell, E. B	Greenville	Meriwether	1891
Tessier, L. P	Augusta	Richmond	1898
Terry, W. R	Sycamore	Irwin	1897
Thomas, J. M.	Griffin	Spalding	1894
Thompson, P. H	Bluffton	Clay	1886
Thompson, Wm. L	Pitts	Wilcox	1897
Todd, J. S. (o., c., p.)	Atlanta	Fulton	1872
Travis, W. D.	Covington	Newton	1898
Trotter, R. W	Madison	Morgan	1894
Trimble, G. C	East Point	Fulton	1891
Tucker, W. B.	Chipley	Harris	1897
Turner, W. J.	Ashburn	Dooly	1897
Tyson, J. D.	Adrian	Emanuel	1893
Van Goidtsnoven, E	Atlanta	Fulton	1887
an Horne, J. T	Monroe	Walton	1892

Name.	Pos'-office.	County.	Admitted.
Walker, J. L.	Waycross.	Ware	1882
Walker, T. D.	Cochran	Pulaski	1897
Wallace, F. R.	Cordele	Dooly	1895
Walton, J. H.	Dublin.	Laurens	1898
Ward, J. A.	Richwood	Dooly	1897
Watson, G. B.	Acree	Worth.	1897
Weaver, J. A.	Buena Vista	Marion.	1890
Weaver, J. D.	Eatonton.	Putnam	1894
Weaver J. L.	Baxley.	Appling	1890
Webb, C. S.	Atlanta.	Fulton.	1892
Webb, J. F.	Monticello	Jasper	1897
Westbrook, T. W.	Ila.	Madison,	1898
Westmoreland, W. F. (o., P.)	Atlanta.	Fulton.	1886
Westmoreland, J. W.	Atlanta.	Fulton.	1897
Whelchel, C. C.	Comer.	Madison.	1891
Whelchel, John E	Gillsville.	Hall.	1891
Whipple, W. H.	Macon	Bibb.	1897
Whitaker, J. M.	Milledgeville.	Baldwin.	1883
Whitehead, A. G. (V.-P., P.)	Waynesboro	Burke.	1861
Wilcox, G. A.	Augusta	Richmond.	1896
Wiley, R. C	Sparta	Hancock.	1897
Wilkie, P. E	Colquitt	Miller	1897
Williams, W. J.	Pembroke.	Bryan	1897
Williams, W. P.	Blackshear.	Pierce.	1890
Williams, H. J. (O., C., P.)	Macon	Bibb.	1883
Willis, T. J.	Washington	Wilkes.	1889
Wimberly, John S	Sunlight.	Stewart	1891
Winchester, W. R	Macon.	Bibb.	1883
Wise, B. T	Plains	Sumter	1893
Wolff, Bernard.	Atlanta	Fulton.	1894
Wooten, Louis O.	Unadilla.	Dooly	1897
Wright, James B	Augusta	Richmond	1896
Wright, Thos. R	Augusta	Richmond	1880

NON-RESIDENTS.

Name.	Post office.	State.	Admitted.
Gann, Dewell.	Benton	Arkansas.	1887
Glass, J. M.	Opelika.	Alabama.	1894
Mitchell, Thos. S	Eufaula	Alabama.	1892
Perry, Thos. B	U. S. M. H. Buffalo	New York	1891
Prather, W. B	Seale.	Alabama	1894

HONORARY LIST.

This list is designed for aged, retired, or infirm members of the Association, who are entitled to all the privileges of the Association without the payment of dues.

The Secretary would be obliged to members to report any names that should go on this list.

Name.	Post-office.	County.	Admitted.
Alexander, J. F. (P., C., V.-P.)	Atlanta	Fulton	1849
Battle, H. L.	Wadley	Jefferson	1891
Bardwell, E. L.	Talbotton	Talbot	1872
Bell, A. A.	Madison	Morgan	1858
Brantley, F. M.	Senoia	Coweta	1849
Brawner, W. M.	Lexington	Oglethorpe	1883
Calhoun, F. R. (V.-P.)	Cartersville	Bartow	1873
Colding, C. H.	Savannah	Chatham	1882
Coleman, J. T.	Perry	Houston	1851
Dudley, M. J.	Sonoraville	Gordon	1880
Griggs, A. W. (O., V.-P., C., P.)	West Point	Troup	1866
Hopkins, T. S.	Thomasville	Thomas	1865
Hoyt, W. D.	Rome	Floyd	1872
Jones, W. L.	Atlanta	Fulton	1849
McDonald, C. M.	Leesburg	Lee	1892
Maddox, W. D.	Monticello	Jasper	1849
Redding, C. F.	Zebulon	Pike	1849
Smith, J. B.	Perry	Houston	1871

IN MEMORIAM.

☞ SPECIAL REQUEST TO EVERY MEMBER.—The Secretary *earnestly requests each member of the Association* to aid him *in filling* THE BLANKS in the following Roll of Deceased Members *by making the necessary inquiries* in their respective cities and counties, *and writing him at once* on obtaining the desired information.

Name.	Post-office.	County.	Admitted.	Died.
Adams, C. B	Augusta	Richmond	1868	1875
Alexander, J. R	Cave Springs	Floyd	1849	
Alexander, L. B	Forsyth	Monroe	1877	1891
Alfriend, E. W. (V.-P.)	Albany	Dougherty	1852	1886
Armstrong, W. S.	Atlanta	Fulton	1886	1896
Arnold, R. D. (V.-P., P.)	Savannah	Chatham	1849	1876
Ashworth, A. B. (S.)	Atlanta	Fulton	1887	1889
Avary, J. C	Decatur	DeKalb	1859	1873
Baker, A. H	Augusta	Richmond	1876	1891
Ballinger, M. R.	Floyd Springs	Floyd	1860	1886
Banks, J. T. (V.-P., P.)	Griffin	Spalding	1858	1880
Barkwell, T. J	Hawkinsville	Pulaski	1859	
Barnett, J. W	Raytown	Taliaferro	1880	1890
Battey, Robert (C., P.)	Rome	Floyd	1859	1895
Battle, H. L	Russellville	Monroe	1849	
Beasley, J. A	West Point	Troup	1849	1897
Bell, T. W	Busbyville	Houston	1853	
Bignon, H. A	Augusta	Richmond	1852	1870
Billing, S. A	Columbus	Muscogee	1855	1872
Bizzell, W. D. (V.-P.)	Atlanta	Fulton	1882	1890
Black, R. C. (T.)	Augusta	Richmond	1852	1860
Bomar, B. F	Atlanta	Fulton	1859	
Borcheim, L. E	Atlanta	Fulton	1886	1887
Boswell, S. J. (V.-P.)	Columbus	Muscogee	1855	
Bosworth, Don B.	Atlanta	Fulton	1894	1898
Bothwell, D. J	Vienna	Dooly	1849	
Bozeman, J. F	Atlanta	Fulton	1855	1877
Boring, John M. (V.-P.)	Atlanta	Fulton	1856	1891
Boyd, Montague L	Savannah	Chatham	1889	1897
Brandon, D. S	Thomasville	Thomas	1873	1878
Brantley, S. D	Sandersville	Washingt'n	1849	1897

Name.	Post-office.	County.	Admitted.	Died.
Broadhurst, W. W	Augusta	Richmond	1852	1861
Brooks, C. A	Americus	Sumter	1888	1894
Brown, S. E	Eatonton	Putnam	1890	1896
Bruce, R. J.	Thomasville	Thomas	1874	1878
Bunn, William	Wilna	Houston	1854	
Burgess, Wm. R.(T.,O.)	Macon	Bibb	1870	1878
Burney, S. W. (P.)				1876
Campbell, Robert	Augusta	Richmond	1849	1885
Carroll, J. C	Laurens Hill	Laurens	1857	1870
Carroll, R. C	Augusta	Richmond	1873	1882
Carter, C. J	Lake Park	Lowndes	1889	1893
Castlen, F. G	Macon	Bibb	1867	1874
Carlton, J. M	Athens	Clarke	1882	1883
Cason, E. A	LaGrange	Troup	1897	1897
Charlton, T. J. (C.)	Savannah	Chatham	1862	1886
Charters, W. M. (P.)	Savannah	Chatham	1851	1883
Chase, D. S	Augusta	Richmond	1862	
Cickey, D. C	Macon	Bibb	1894	1896
Clark, S. B.	Rich. Factory	Richmond	1852	
Campbell, H. F.(O.,V.-P.,P.)	Augusta	Richmond	1851	1892
Coe, J. N	Flat Rock	Pike	1856	
Coleman, John S	Augusta	Richmond	1891	1892
Colley, F. S. (P.)	Monroe	Walton	1856	
Cooper, G.F.(O.,S.,V.-P.)	Americus	Sumter	1849	1882
Copeland, A. B.	Hamilton	Harris	1878	1882
Cornwall, G. H.	Hillsboro	Jasper	1854	
Crawford, S. S	Augusta	Richmond	1857	
Crump, E. D.	Herndon	Burke	1872	1881
Cumming, H. M	Augusta	Richmond	1862	1887
Cunningham, L. S	Big Creek	Forsyth	1859	1862
Cunningham, W. D.	Jasper	Pickens	1859	1866
D'Alvigney, N	Atlanta	Fulton		1877
Davenport, C. W.	Point Peter	Oglethorpe	1852	
Davenport, H. S	Calhoun	Gordon	1859	
Davis, W. L	Albany	Dougherty	1849	
Deadwyler, M.P.(V.-P.)	Elberton	Elbert	1868	1895
Dean, S. H.	Conyers	Rockdale	1856	
Dearing, W. E	Augusta	Richmond	1852	1867
DeCortez, C. A.	Savannah	Chatham	1872	
Dickinson, J. T	Albany	Dougherty	1857	
Dickinson, R. Q.(V.-P.,P.)	Albany	Dougherty	1850	
Dobbins, W. O.	Fort Gaines	Clay	1883	1890

Name.	Post-office.	County.	Admitted.	Died.
Dugas, L. A. (P.)	Augusta	Richmond	1852	1884
Dupree, L. J	Camilla	Mitchell		1890
Engram, R. O	Montezuma	Macon	1881	1893
Eve, Joseph A	Augusta	Richmond	1852	1886
Eve, S. C.	Augusta	Richmond	1868	1884
Felder, W. L	Augusta	Richmond	1857	1867
Fish, J. D. (T.)	Savannah.	Chatham	1875	1879
Fitzgerald, E	Macon	Bibb	1882	1885
Ford, L. D. (P.)	Augusta	Richmond	1849	1884
Fort, Moses T	Hawkinsville	Pulaski	1859	1878
Freeman, S. H	Dacula	Gwinnett	1891	1897
Franklin, M. A	Macon	Bibb	1849	1858
Frazier, W. M	Hawkinsville	Pulaski	1850	
Gaither, Henry	Oxford	Newton	1851	1890
Gaither, B. T.	Oxford	Newton	1852	1853
Gardner, J. W	Augusta	Richmond	1857	
Girardy, Edward	Augusta	Richmond	1852	1859
Gordon, J. M	Savannah	Chatham	1849	
Gray, Jas. A. (S.)	Atlanta	Fulton	1882	1887
Gray, S. H	Barnesville	Pike	1871	1885
Green, A. B	Pond Town	Sumter	1849	
Green, H. K	Macon	Bibb	1849	1867
Green, Thomas F	Milledgeville	Baldwin	1849	1879
Gregory, J. D		Sumter	1849	
Griffin, C. F	Cassville	Bartow	1888	1893
Griggs, R. E	Columbus	Muscogee	1892	1897
Grimes, T. W	Columbus	Muscogee	1855	1882
Habersham, J. C	Savannah	Chatham	1853	
Habersham, J.C., Jr. (V.-P.	Savannah	Chatham	1866	1881
Habersham, S. E	Eatonton	Putnam	1870	
Hagan, Hugh	Atlanta	Fulton	1892	1898
Hallum, J. W	Carrollton	Carroll	1891	1895
Hammond, D. W. (V.-P., C.)	Macon	Bibb	1857	1887
Harden, W. P	Harmony Grove	Jackson	1852	1885
Harrell, W. J.	Bainbridge	Decatur	1874	1881
Harris, S. N. (V.-P.)	Savannah	Chatham	1851	1854
Harris, N. O	Atlanta	Fulton	1887	1896
Harris, Juriah (O., V.-P.)	Savannah	Chatham	1852	1876
Harrison, Gabriel.	Macon	Bibb		1862
Hart, A. C.	Waynesboro	Burke	1852	
Hatch, Milo G. (C.)	Tennille	Washingt'n	1883	1897
Hatchett, J. M.	Fort Gaines	Clay	1892	1892

Name.	Post-office.	County.	Admitted	Died.
Havis, M. W	Perry	Houston	1854	1890
Hawes, E. C	Appling	Columbia	1852	
Hawkins, S. B	Americus	Sumter	1871	1892
Heard, T. O	Griffin	Spalding	1867	
Hendrick, J. B	Covington	Newton	1857	1881
Henry, G. C	West Point	Troup	1872	
Hook, E. B	Augusta	Richmond	1857	1862
Houston, J. P. R	Savannah	Chatham	1873	1892
Hoxey, Thomas	Columbus	Muscogee	1849	1853
Hollingsworth, W. T	Madison	Morgan	1857	1893
Holmes, G. W. (V.P., P., C.)	Rome	Floyd	1867	1890
Holmes, T. M. (O.)	Rome	Floyd	1883	1891
Hamilton, J. L	Stone Mountain	DeKalb	1859	1890
Hunter, E. H. W	Louisville	Jefferson	1857	1883
Ingraham, E. P	Albany	Dougherty	1870	1873
Irvine, Robert	Augusta	Richmond	1880	1881
Johnson, C. W	Macon	Bibb	1870	1875
Johnson, John M	Atlanta	Fulton	1866	1886
Jones, B. O	Atlanta	Fulton		
Jones, J. W	Atlanta	Fulton	1857	1871
Kennedy, L. P	Atlanta	Fulton	1890	1892
Kennebrew, Henry	Athens	Clarke	1883	1886
Kirkscey, E. J. (V.-P.)	Columbus	Muscogee	1871	1877
Kollock, P. M. (P.)	Savannah	Chatham	1852	1872
Lamar, T. R. (V.-P.)	Macon	Bibb	1849	1859
Lackhart, R. H	Columbus	Muscogee	1855	1859
Lattimer, C. T	Macon	Bibb	1889	1889
Lawrence, L. L	Blountsville	Jones	1889	1890
Leitner, C. B	Columbus	Muscogee	1852	1897
Lightfoot, W. S	Macon	Bibb	1849	1864
Long, Crawford W	Athens	Clarke	1849	1878
Logan, J. P. (P.)	Atlanta	Fulton	1858	1891
Love, Wm. Abram (V.-P)	Atlanta	Fulton	1866	1898
Lumpkin, George	Maxey's Depot	Oglethorpe	1859	
Lumpkin, S. P	Watkinsville	Clarke	1859	
Mackie, J. D	Augusta	Richmond	1852	1854
Maffit, R. G. W	Dalton	Whitfield	1859	
Matthews, W. B	Fort Valley	Houston	1884	1885
McBride, W. G	Oconee	Washingt'n	1850	1873
McDowell, J. M	Barnesville	Pike	1887	1891
McGolrick, R	Macon	Bibb	1849	1853

Name.	Post-office.	County.	Admitted.	Died.
McKinley, C. A.	Newnan	Coweta	1859	
McMillen, J. E.	Columbus	Muscogee	1872	1883
Means, A. (v.-p.)	Oxford	Newton	1851	1883
Means, O. S.	Oxford	Newton	1857	
Meiere, Wm. S.	Madison	Morgan	1857	
Milam, R. J	Fairburn	Campbell	1882	1882
Miller, H. V. M.	Atlanta	Fulton	1851	1896
Morrison, D. H.	Savannah	Chatham	1868	1869
Mulligan, G. W. (v.-p., p.)	Washington	Wilkes	1883	1897
Musgrove, W. C. (c., s.)	Midville	Burke	1849	1876
Nash, R. A.	Marion	Twiggs	1849	
Nisbet, R. H	Eatonton	Putnam	1854	1873
Noell, S. G	Ypsilanti	Talbot	1892	1892
Nottingham, C. B. (s., t., c., p.)	Macon	Bibb	1849	1875
Nunn, R. M	Savannah	Chatham	1871	1873
Ogilby, H. J. (v.-p.)	Madison	Morgan	1849	1873
O'Keefe, D. C. (s.)	Atlanta	Fulton	1852	1871
Orme, L. H. (s.)	Atlanta	Fulton	1866	1872
O'Sullivan, ——	Cork	Lee	1849	
Owen, J. D.		Baldwin	1850	
Parsons, J. M	Russellville	Monroe		
Perdue, H	Barnesville	Pike	1889	1896
Pitts, G. W	Star	Butts	1859	
Poore, J. J	Monroe	Walton	1894	1896
Posey, J. F	Savannah	Chatham	1851	
Powell, T. S. (v.-p.)	Atlanta	Fulton	1857	1896
Pringle, W	Covington	Newton		
Ragan, Isham H	Palmyra	Lee	1856	
Raines, Thomas	Atlanta	Fulton	1872	1883
Raines, T. L	Atlanta	Fulton	1882	1884
Rauschenberg, Christian	Atlanta	Fulton	1861	1878
Richardson, C. P.	Savannah	Chatham	1851	1853
Ridley, R. A. T. (v.-p.)	LaGrange	Troup	1859	1871
Robertson, J. J	Washington	Wilkes	1852	1872
Roddy, R. L. (v.-p.)	Forsyth	Monroe	1849	1878
Ruffin, W. R.	Augusta	Richmond	1852	
Russell, W. J	Lawrenceville	Gwinnett	1861	
Ryan, T. D. L	Hawkinsville	Pulaski	1859	1876
Stafford, S. J	Madison	Morgan	1856	1859
Searcy, D. B	Bolingbroke	Monroe	1849	1885
Shropshire, J. W			1871	
Simmons, J. N.	Atlanta	Fulton	1850	1871

Name.	Post-office.	County.	Admitted.	Died.
Simmons, J. S	Gainesville	Hall	1873	1881
Simmons, S. B	Augusta	Richmond	1852	1867
Simmons, T. A	Irwinton	Wilkinson	1871	1871
Slaughter, J. T	Villa Rica		1851	1889
Smith, A. D	Montezuma	Macon	1871	
Smith, C. W	Jonesboro	Clayton	1859	
Smith, Hiram	Augusta	Richmond	1876	1888
Smith, H. H	Augusta	Richmond	1886	1887
Smith, R. M. (C.)	Athens	Clarke		1879
Smith, Thomas	Savannah	Chatham	1858	1876
Spier, W. A	Grantville	Coweta	1859	
Stallings, J. D	Preston	Webster	1871	
Stanford, F. A	Columbus	Muscogee	1849	1885
Starr, E. P	Savannah	Chatham	1868	1873
Steele, H.	Knoxville	Crawford	1849	
Steele, R. T	Fairburn	Campbell	1849	
Steiner, H. H	Augusta	Richmond	1857	1892
Stephens, W. B	Forsyth	Monroe	1849	
Sterling, W. L	Atlanta	Fulton	1878	1894
Stewardson, Thomas	Savannah	Chatham	1849	
Stovall, G. M	Elberton	Elbert	1894	1894
Stozier, L. L	Albany	Dougherty	1867	
Strother, W. A	Albany	Dougherty	1867	1896
Sutton, C. B		Lee	1856	
Taliaferro, V. H. (V.-P.)	Atlanta	Fulton	1857	1887
Taylor, E. T	Columbus	Muscogee	1855	
Taylor, J. P	Haralson	Coweta	1859	1897
Taylor, R. N	Hawkinsville	Pulaski	1850	
Thomas, J. G. (V.-P., P., C., T.)	Savannah	Chatham	1867	1885
Thompson, Chas	Macon	Bibb	1849	1854
Trammell, A. A	Forsyth	Monroe	1856	
Tucker, O. W	Brunswick	Glynn	1890	1891
Underwood, J. B.	Cave Spring	Floyd	1860	1881
Van Meter, J. N	Euharlee	Bartow	1879	1881
Wall, W. W	Calhoun	Gordon	1860	
Walker, T. F	Cochran	Pulaski	1859	1888
Walker, F	Macon	Bibb	1889	1891
Ware, A. E. O			1859	
Waring, J. J	Savannah	Chatham	1853	1888
Watson, W. A	Jefferson	Jackson	1883	1889
Wells, C. H	Savannah	Chatham	1853	1854
Wells, W. B	Chattanooga	Tennessee	1873	1891

Name.	Post-office.	County.	Admitted.	Died
West, Chas. (P.)	Perry.	Houston	1849	
West, C. W	Savannah	Chatham	1853	1859
Westmoreland, W. F. (P.)	Atlanta	Fulton	1856	1890
Wethington, R. T.	Thomasvillie	Thomas	1884	1887
White, S. G. (V.-P.)	Milledgeville	Baldwin	1868	1877
Whitlock, Isaac W	Washington	Wilkes	1852	1853
Wile, Henry	Atlanta	Fulton	1885	1887
Wiley, J. B	Macon	Bibb	1849	
Williams, T. L		Dooly	18 9	
Williams, W. L	Fayetteville	Fayette	1873	
Willingham, Willis	Lexington	Oglethorpe	1849	1872
Winchester, E. A	DeSoto	Sumter	1893	1897
Winn, G. A	Bolingbroke	Monroe	1849	1862
Wirsen, G. F	Rutledge	Morgan	1871	1884
Woodson, C. T	Wilna	Houston	1854	
Wooten, W. H	Lexington	Oglethorpe	1852	1860
Word, T. J	Rome	Floyd	1887	1890
Word, R. C	Atlanta	Fulton	1855	1890
Wragg, J. A	Savannah	Chatham	1853	
Wright, P. H	Macon	Bibb	1869	1888
Yonge, Easton	Savannah	Chatham	1880	

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